

*January* 1940

# TECHNOLOGY

## REVIEW

Title Reg. in U. S. Pat. Office



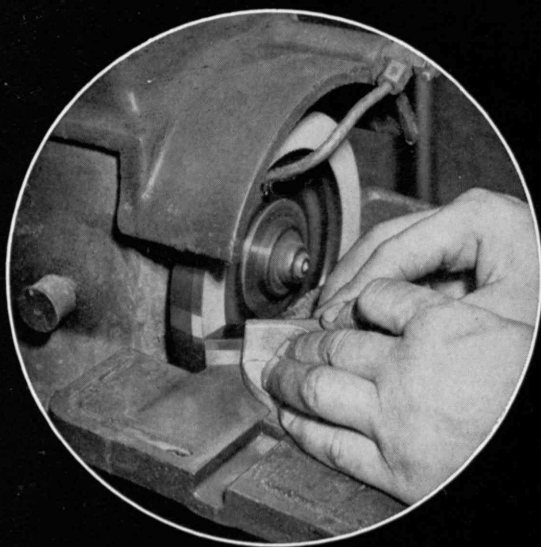


# technology review

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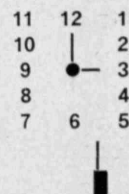
## THE TABULAR VIEW

AS to be an artist, so to be a connoisseur requires a singleness of purpose which will enable a man in the first place to set up a touchstone by which to evaluate his own life and the life around him, and thereafter to be firm in rejecting the nonessential and holding fast to the essential as that criterion indicates them. DARD HUNTER, curator of the Dard Hunter Paper Museum at the Institute, is both artist and connoisseur. Out of a life extraordinarily broad because it has deliberately been narrowed in this fashion, he has brought to the Institute, as he brings to this issue of *The Review*, opportunity for new recognition of the riches that reside in simplicity. Signalizing the 250th anniversary of the manufacture of paper by hand in this country, Dr. Hunter's discussion (page 109) of the Museum and its origin offers shrewd observations on men and affairs as well as illuminating description of the fruits of the art of papermaking — the art which truly divides with the art of printing the honor of being *ars artium omnium conservatrix*. ¶ Steady contributor to the *Trend of Affairs*, and Editorial Associate of *The Review* for some years, PAUL COHEN, '35, points out (page 112) a consequence of technological development which underlies many of the world's present perplexities. As an undergraduate, Mr. Cohen proved himself an able editor of *The Tech*. He has served a term as instructor in the Department of English and History at the Institute, and is at present with the United Shoe Machinery Corporation. ¶ Among developments in the recording of knowledge, few offer more interesting possibilities or more important opportunities for standardization than does microphotography. Economy in space, permanence in time, convenience in use, and the other advantages which are inherent in it will be better realized as materials and techniques are better rationalized. RALPH D. BENNETT, Professor in the Department of Electrical Engineering at the Institute, well known to readers of *The Review*, considers in this issue (page 114) the range of promise and problem involved. For the Carnegie Corporation's Committee on Scientific Aids to Learning, Dr. Bennett has been investigating the possibilities of sheet microfilm, his report on which will appear in the *Journal of Documentary Reproduction*. ¶ Another type of insurance against destruction is discussed (page 116) by ROBERT C. DEAN, '26, whose analysis of ways to stop the termite grows out of his own practice of architecture. An instructor in the Institute's School of Architecture, Mr. Dean is associated with the Boston firm of Perry, Shaw and Hepburn, and was especially concerned in the restoration of Colonial Williamsburg in Virginia. ¶ C. FRANK ALLEN, '72, Emeritus Professor of Railroad Engineering, active sharer in alumni affairs for many years, in this month's *Institute Gazette* puts into the record facts and anecdotes out of early alumni history. Dr. Allen's article bespeaks again the fact that colleges are compacted of the personalities of their graduates; his own pungent style is best evidence of the Institute's good fortune on this score.

No. 21

## Just for Fun! A CHALLENGE TO YOUR INGENUITY

OUR friends at the U. S. Bureau of Standards tell us that Mr. John Tucker, Jr., has been surprising them with the problem stated below. Make your guess before calculating!



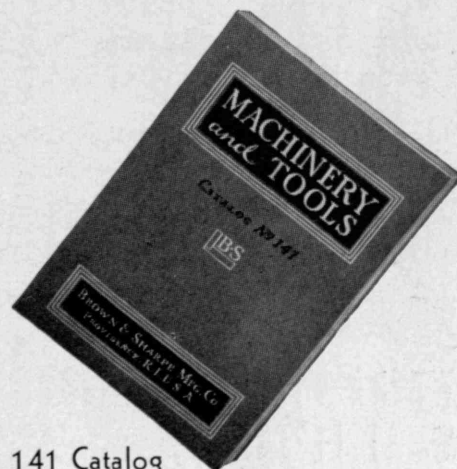
Compare an electric clock, requiring 2 watts power, with an old fashioned grandfather clock driven by a descending 10 pound weight. How far must the weight drop in 24 hours to furnish power equal to that used by the electric motor? Answer [read backwards]: Selimowtnahterom!

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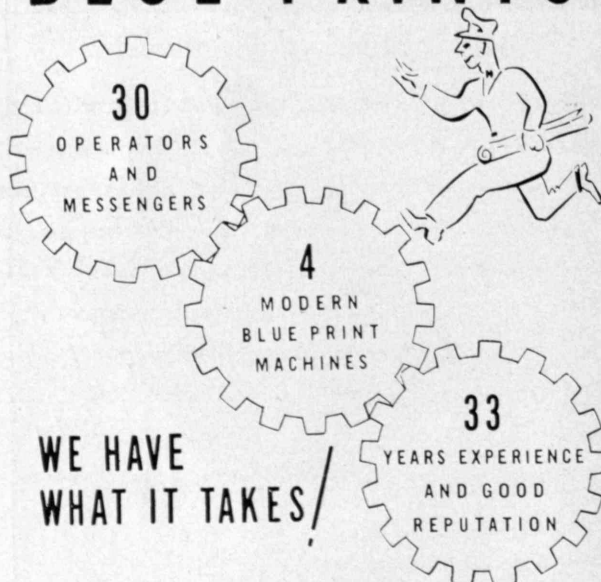


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A. L. Weil '01

## MAIL RETURNS

### Insurance and Engineering

FROM BENJAMIN L. WHORF, '18:

I was rather surprised to find, in the form recently sent to Alumni by the Placement Bureau and the Register of Former Students, that — probably as a result of necessary abbreviation — insurance, insurance engineering, fire-prevention or accident-prevention engineering, and safety work may appear not to be regarded as germane to the engineering field. Considering not only the importance of insurance and its allied branches as a profession and its essential nature in our economic fabric, but also the fact that much insurance work — such as fire prevention and protection, accident prevention, inspection, and rating — is really of an engineering nature, I believe that insurance should not be classified as a nonengineering vocation.

I have been working in these lines, especially in the preventive-engineering end, since leaving Tech in 1918. The omission interests me as symptomatic of one thing that I think is the matter with engineering education. This is a concealed assumption that engineering is concerned only with production and not with safeguarding of production. Our technique of harnessing energy is being perfected only along routine lines — that is, from the standpoint of the classical definition of efficiency. We are, for example, relatively uninterested in stopping the energy from causing accidents, fires, and explosions, which it is doing constantly and on a wide scale.

A few months ago one of the largest chemical plants in the country consulted me about the design of a new plant for the chlorination of toluene. When the time came to start construction, they would not begin until I had approved the plan and wired them to go ahead. The question had nothing to do with insurance; it was purely a matter of physical safety against fire and explosion. Probably very few engineering concerns would do this. Those that would do so are wise. The typical chemical engineer, or engineer of any sort, has not been trained in the design of plants that are reasonably safe from fire and explosion — reasonably safe for human beings to live and work in. Fire and explosion prevention and preventive design are a separate engineering branch, of which at present there is no organized teaching. Those who know it have learned it by the apprenticeship method, and among them are many Tech men.

Hartford, Conn.

### Heuristicus Answered

FROM LLOYD T. BUELL, '05:

... Respectfully submitted. The whole family assisted and enjoyed the experience.

Bisbee, Ariz.

Mr. Buell's solution of the Double-Crostic with which Mail Returns ended the year 1939 was the first received, arriving in The Review's sanctum on December 9. Salutations are respectfully tendered him and his. The hidden quotation, from which the words to be defined may easily be reconstructed, follows:

"The prince of scientific expositors, Faraday, was once asked: 'How much may a popular lecturer suppose his audience knows?' He replied emphatically: 'Nothing.' Mine was not exactly a popular audience, but I ought not to have forgotten Faraday's rule."

*The*

### HANDBOOK OF COLORIMETRY

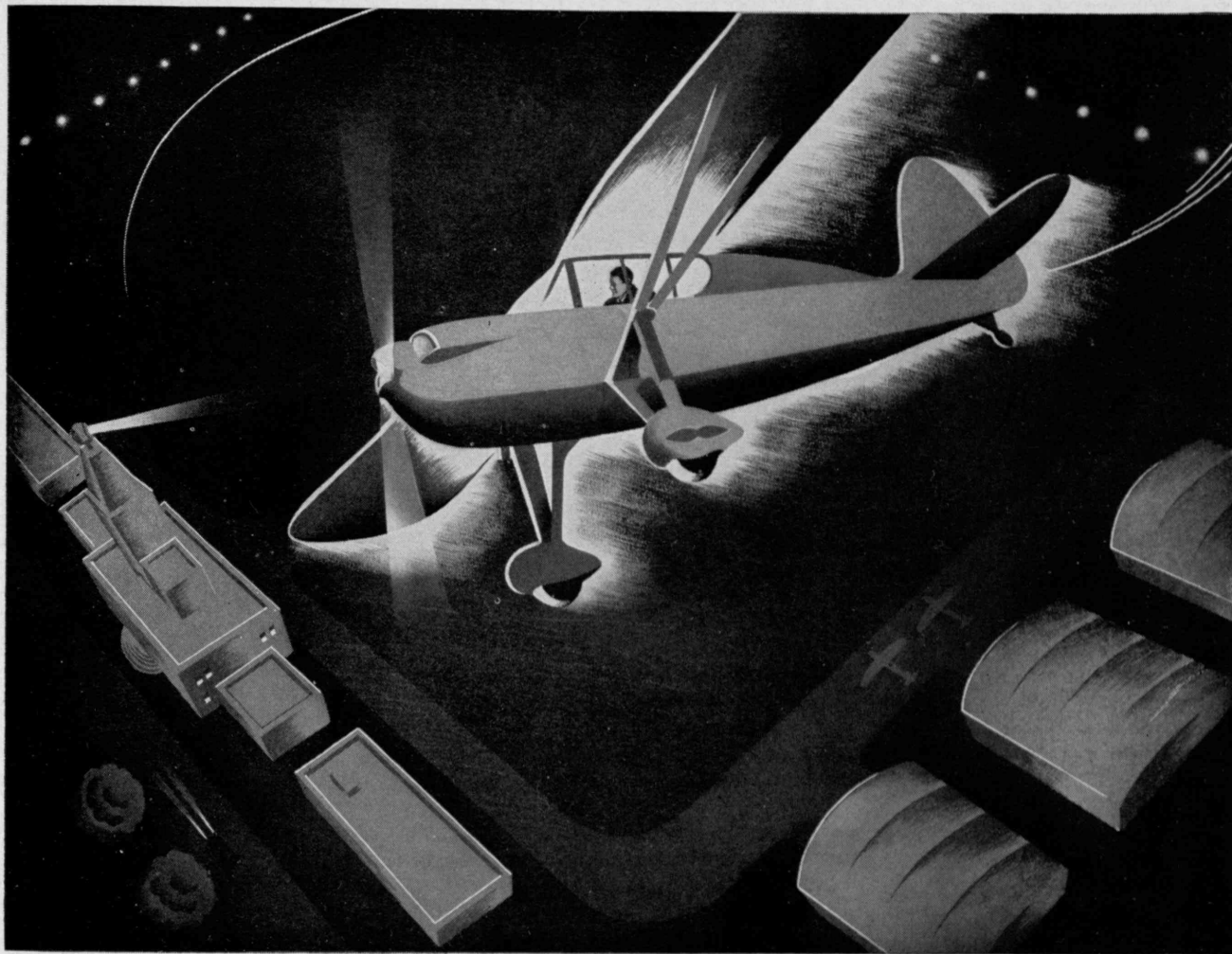
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gateway  
garden

R. W. St. Clair, '36

# THE TECHNOLOGY REVIEW

Title Reg. U. S. Pat. Office

EDITED AT THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

VOL. 42, NO. 3

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From a photograph by H. K. Shigeta

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# THE TECHNOLOGY REVIEW

Vol. 42, No. 3



January, 1940

## The Trend of Affairs

### *Decentralization by Bombing*

A SEARCH for possible social benefits from the horrors of modern aerial warfare may at first glance appear to be rationalization or simply wishful thinking. The pursuit is not entirely hopeless, however, for an interesting contrast can be drawn between the effect of defense measures on the planning of towns in medieval times and the effect of similar measures in what, amid the echoes of air-raid sirens and the acrid stench of high explosives, men still call the era of enlightenment. This conclusion is particularly true of city planning as it relates to the distribution of population.

In the past, the tendency of protective measures, such as encircling fortifications, was to increase centralization of human activities, and thus inevitably to occasion an increase in population congestion. Today, the dangers of attack from the air are not only stimulating the improvement of air-defense methods but are providing significant ammunition to the followers of Ebenezer Howard and other disciples of decentralization. That industrial concentration, as well as population congestion, is under fire is obvious from the most casual perusal of current European periodicals devoted to city planning. Recently *Town and Country Planning* of London quoted Frank A. B. Preston, a recognized authority, as saying that "frequently London has placed the British Empire in jeopardy by her colossal growth and her rapacious collection to herself of all manner of manufactories and industries that have no real essential need to be concentrated within her vast confines. Military considerations now demand the rapid dispersal of many of these industries and I venture

to say, despite the views of such a great organisation as the London Transport, that this should proceed despite any general appeasement of Europe, for the need of this is to be found in the very roots of any well balanced distribution of population."

The same publication, ironically enough, was used by Letchworth Garden City, 35-year-old example of Ebenezer Howard's philosophy of planning, as vehicle for a full-page advertisement captioned "Plan for Safety and Build Your Factory at Letchworth," and advising industrialists to "move your factories beyond the 30 mile danger zone of London. Sir Raymond Unwin recently showed that the amount of land on which missiles can fall without striking a building is 20 times as extensive in Letchworth as in London. With an average of only 7 families to the acre, Letchworth is immeasurably safer than London with its tenements housing 50 or 60 to the acre."

The housing commission of the League of Nations Health Organization at its summer meeting considered a memorandum on air-raid precautions submitted by Professor Stanley D. Adshead, English authority on town planning, and included some of his recommendations in its report on town and country hygiene. After pointing out that the considerations of air defense tend to encourage decentralization and that the avoidance of danger from the air calls for an increase in open space about buildings, the report lists three factors which should be carefully considered by those responsible for the planning of town extensions.

The first of these factors is that when public service stations, railway junctions, airport buildings, and other large structures which may be regarded as military targets are situated near residential estates, no further development of the latter should be permitted. The second is that all new buildings which may be regarded as attractive targets should, as far as possible, be







*In the North End of Boston, close-packed buildings on narrow, curving old streets concentrate people despite later efforts to secure open areas, as in the Prado, lower center of this picture.*

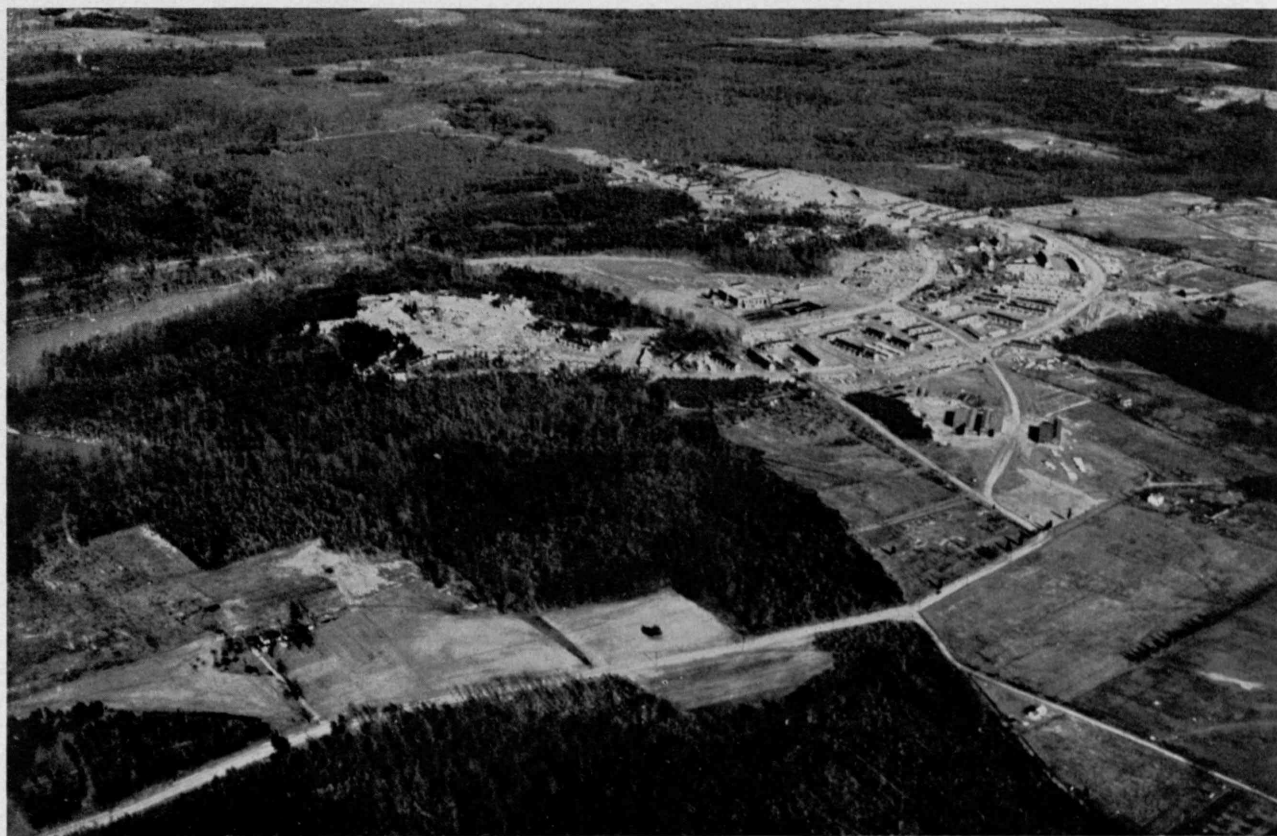
erected on isolated sites and be separated from residential areas by at least a quarter of a mile. And, finally, the report suggested that general encouragement should be given to the wide distribution of buildings and to the separation of groups of buildings by open spaces.

Thomas Adams, the distinguished English authority on planning, whose son, Frederick J. Adams, Associate Professor in the School of Architecture, is in charge of the Institute's Course in City Planning and Housing, recently made the interesting suggestion that the problems raised by wartime evacuation of population from English cities be solved by building villages. These rural communities would provide permanent accommodation for the purposes of evacuation, education, promotion of physical fitness, and vacations. Dr. Adams suggested that in such villages, built on the pattern and with the traditions of the best type of English community, family life could be preserved and that their establishment in suitable places might be expected to revive rural life and industry.

There is little doubt that air-defense measures will give an impetus to existing tendencies in European countries in the direction of planning for open development. The results of this impetus may have reverberations on this side of the Atlantic. If the application of these principles in Europe shows that a sound decentralization policy can be justified on economic as well as on social grounds, it is quite probable that the necessary spur would thus be provided to the adoption of a similar policy by metropolitan regions in this country.

If this happens, it would be important that a comprehensive and co-ordinated program be adopted on a regional if not a national basis, for it may involve radical changes in the patterns of existing cities and regions. A considerable amount of decentralization has already taken place in this country during the past fifty years. Improvements in methods of transportation have brought about an extensive development of residential suburbs on the fringes of large cities, but this has too often been haphazard and unregulated. Scattered developments are a commonplace in most metropolitan regions, creating a serious economic problem because of the excessive amount of subdivided land and the lack of co-ordinated street patterns. Industrial decentralization has taken place on a much smaller scale, either by the movement of plants to the suburban periphery of cities or by the establishment of new communities.

The most common form of decentralization is the gradual spreading of the city outward from the center, which creates increased congestion in the central areas and imposes a heavy tax on transportation lines and arterial highways. This raises the question of the possibility of halting the expansion of existing cities, improving their transportation systems and population distribution, and providing for a much more open type of future industrial and residential development. Such a program may involve the establishment of entirely new communities or the expansion of existing cities of medium size.



Farm Security Administration

*An aerial view of Greenbelt, Md., an excellent example of a planned residential community showing intelligent utilization of space and thoughtful consideration of the relationship between town and country*

The sound and constructive arguments for city planning need no defense, for planning will inevitably contribute to higher standards of living and the advancement of society in general. And history may, perhaps, record that in the era of enlightenment, bursting bombs helped to make better cities for a better age.

### *Phenomena in Fiber*

**F**ABRIC and fashion are, fundamentally, functions of fiber — of natural fibers, such as silk, cotton, wool; of chemical fibers, such as rayon, nylon, "Lanital" — upon whose properties of luster, strength, susceptibility to dyes, retentiveness of heat, depend the style, wearability, and warmth or coolness of garments. The spectacular development of chemical fibers (the production of continuous-filament rayon, for instance, boomed from 180,000 tons in 1928 to 495,000 tons in 1938) is testimonial to two facts: that people have a constant desire for new, different, or better fibers for clothing; and that chemical fibers offer the textile industry freedom from the tricks of nature. Diameter, strength, and other qualities may be varied to suit in a continuous chemical filament, whether it be built of cellulose rearranged, as in an acetate rayon; of coal and gas synthesized, as in nylon; or of casein reconstructed, as in the wool substitute which Italians call Lanital.

Another and even more significant gauge of the development of man's ability to manufacture fibers excelling those supplied by nature is the fact that the continuous-

filament industry is already mature enough to have fathered a lusty offspring whose growth bids fair to exceed the extent and the rate of that of its parent. This arrival, already some ten years old and hence well established, is the manufacture of staple fiber as distinct from continuous filament. Its approach toward dominance among chemical fibers emphasizes anew the considerations of control, quality, and plan which were motifs in the story of the development of continuous filament.

Chemical fiber in staple form is no more than the familiar continuous filament cut or pulled apart into various lengths from  $1\frac{5}{16}$  of an inch to five inches, thus resembling in length cotton or wool staple. It is made in various diameters. It is clean to begin with, requires no costly cleansing. It can be spun, in combination with natural staples or by itself, into the yarns from which fabrics are made. The manufacturer's ability to standardize the length of staple, to regulate its thickness, and to control its texture — cutting continuous filament under tension results in a staple crinkled like wool — provides him with a raw material embodying not only all the qualities by which continuous chemical filament excels natural fiber, but also possessing for certain purposes distinct advantages over the continuous filament itself.

Yarns made from continuous filament have suffered because the chemical filaments are naturally very lustrous, so lustrous that unless dulling or delustering agents are employed in their manufacture, they have a



glitter that may approach the tawdry. Furthermore, the continuous filaments are too stiff and wiry, and too smooth, for the highest successfulness in some kinds of fabric. Yarns spun from chemical fiber that has been cut or snapped to form staple, however, are softer, more like yarns from natural fibers, and produce a thicker, lighter, softer goods characterized by a dull sheen rather than a shiny glitter. All the good properties inherent in the chemical fiber are retained. Manufacture of continuous filament, however, proceeds merrily and will probably go right on doing so, for the continuous filament has distinct uses and opportunities upon which yarns spun from chemical staple are not likely to encroach. The staples are being made mainly of viscose rayon. Acetate rayon provides the second largest source, with casein fiber third. Whilst in earlier stages of the industry, staple was made from continuous-filament waste, continuous filament now is being produced in order to be cut or snapped to make staple.

World production of rayon staple fiber in 1930, according to *Rayon Textile Monthly*, was 6,250,000 pounds; in 1938, 957,800,000 pounds, something over 150 times as great. Development in the United States has not been so fast, going from 350,000 pounds in 1930 to about 85 times as much, or 29,833,000 pounds, in 1938. Japan, with 375,000,000 pounds; Germany, with 330,000,000; and Italy, with 166,885,000, were the world's greatest producers in 1938. American importation of rayon staple fiber since 1931 has been principally from Italy and England, though in two years — 1936 and 1937 — imports from Japan topped the list. In those years, the United States imported as much staple as it manufactured. Independence of importation is one consequence to be foreseen from the expansion of the domestic industry.

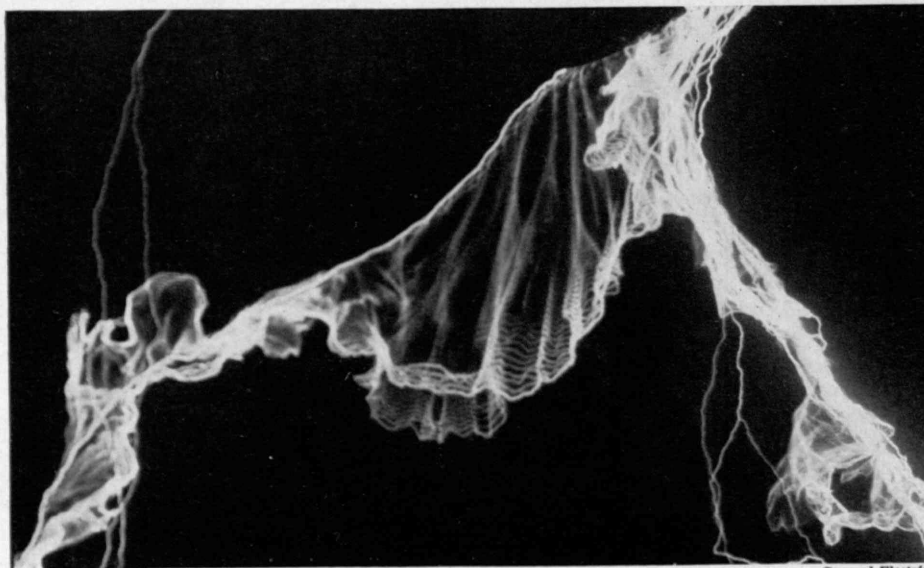
Expansion of the industry throughout the world may be expected to lead more and more to the marketing of the chemical fibers, both continuous and staple, and of the yarns and fabrics made from them, on their own merits. In earlier years "artificial silk" and "synthetic wool" were the catchwords; effort to merchandise the

materials as duplicates of the natural products was the practice. Advent of staple fiber may contribute to the growing tendency to regard and to sell test-tube textiles as materials different and apart from their natural predecessors, duplicating them in some qualities, excelling them in others. Thus on the market at present are blankets woven of rayon yarn spun from rayon staple — as warm as their woolen equivalents, somewhat lighter in weight, somewhat closer in nap, considerably slighter in cost, and unappetizing to moths. Less than 10 per cent of the material making up one of these blankets is wool, and that is restricted to the filling yarns of the fabric. Other uses for the products of the new staple are in development, among them being the possibility of their adoption for carpet pile.

The lag between scientific development and language is made conspicuous by these textile phenomena. If the term "natural fiber" is reserved for wool, cotton, flax, and so on, shall rayon, nylon, and their compeers be called "unnatural"? The overtones of the word "artificial" are generally poor. "Synthetic" also has undesirable connotations, and not all the fibers are actually synthetic anyway. Nylon comes the nearest to being truly synthetic and the nearest to being truly an artificial silk, because it is actually synthesized and because it is manufactured of a colloidal substance under pressure, much as natural silk is formed into filament by the silkworm. The chemical fibers offer opportunity for word makers as well as dressmakers.

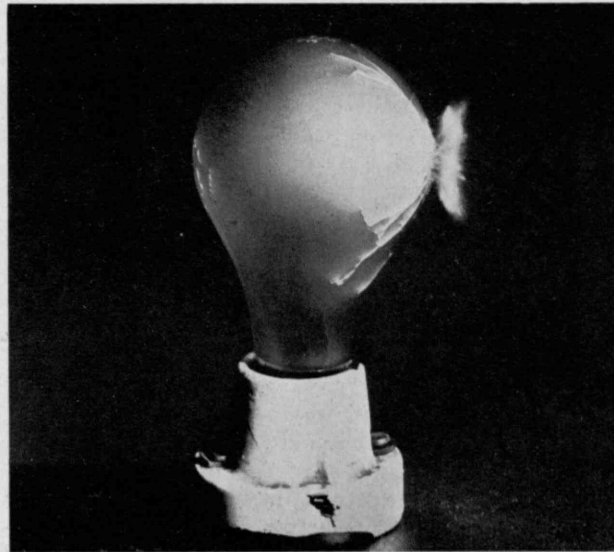
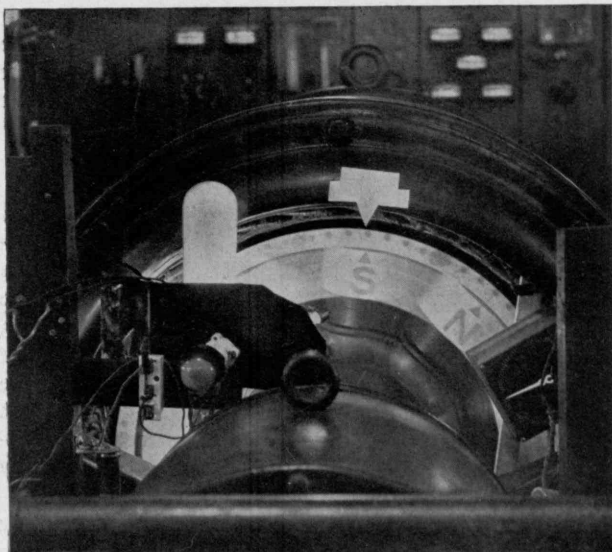
### Split-Second World

TEN years ago Harold E. Edgerton, '27, Associate Professor in the Institute's Department of Electrical Engineering, began exploring the possibilities of high-speed stroboscopic, or flash, photography. The stroboscope itself was not new, for this "whirling watcher" had long been used for stop-motion studies by means of the periodic interruption of light. But Professor Edgerton and his colleagues, Kenneth J. Ger-



*Jabot for Electra — this lace is part of a nine-foot million-volt three-phase 60-cycle arc between revolving pin wheels.*

General Electric



Some ten years apart in time, these two photographs by Harold E. Edgerton, '27, epitomize one aspect — the pragmatic — of the stroboscopic technique in photography which Dr. Edgerton perfected and all aspects of which are presented in *Flash!* by Dr. Edgerton and James R. Killian, Jr., '26. On the left is one of the very earliest stop-motion pictures, of the poles of a generator in the Institute's electrical measurements laboratory. Beside it is pictured an electric-light bulb containing a .30-caliber bullet moving at the rate of 2,700 feet a second. The bullet stays in the bulb a millionth of a second, more or less, but fast as it moves, cracks in the glass move faster. Those discernible on the left face of the bulb foretell the early emergence of the bullet.

meshausen, '31, and Herbert E. Grier, '33, saw the possibility of applying the stroboscopic principle to a new and important use.

The first step was to perfect a source of light of intense actinic value under a control so delicate that the light could be made to flash at intervals as short as  $1/1,000,000$  of a second. Then with the aid of their cameras, the photographic explorers cautiously crossed a long-forbidden frontier and in the light of time-shattering flashes entered a new and bewildering world.

Readers of *The Review* have already seen many excellent examples of Professor Edgerton's high-speed photography. These, however, were but appetizers for the photographic feast now presented in *Flash!*,\* a unique volume of astonishing high-speed photographs in which James R. Killian, Jr., '26, Executive Assistant to President Compton, has collaborated with Dr. Edgerton in writing a fascinating story of ultrahigh-speed photography. No less notable than the text as examples of lucid, well-documented writing and as a contribution to intelligent analysis are the excellent captions describing the more than 200 photographs. Here, where so many fail, the authors have greatly enhanced the pleasure of observation by those who look to see.

The slothful eye sees little in the flight of birds and insects; it knows nothing of the hidden beauty of flowing liquids or the grim expression of a bullet traveling at 1,800 miles an hour. It is incapable of registering the fleeting, often ludicrous, even agonized grimaces of athletes performing at the borderline of endurance. The eye misses much of the beauty of motion in children at play, the lightning-fast grace of a cat, the deceptive movements of the magician's clever hands. Only the lens of Dr. Edgerton's camera has recorded the flight of a crack moving at 5,000 feet a second across a pane of glass, or the beating, bending blades of a ship's propeller.

\* Boston: Hale, Cushman and Flint, 1939. 203 pages, \$3.00.

Until Professor Edgerton recorded them on a photographic plate, no eye had seen stop-motion pictures of a hummingbird in flight. Similarly, the beauty of falling drops of liquid, the inflation and collapse of bubbles, the incredibly fast thrusts of a fencer, and the flight of an arrow are revealed in crystallized motion.

In *Flash!*, high-speed photography takes its place as an important and versatile aid to knowledge and a tool for service to science and industry, the value of which can hardly be overestimated. What these remarkable photographs reveal in unsuspected beauty of form and detail is a shock to complacent acceptance of the human eye, efficient as it is, as a completely satisfactory organ of sight. Dr. Edgerton's work is an exquisite example of man's ability through science to improve upon, and extend, the functions of his own being. Thus stroboscopic light, brighter than the sun, flashing in rhythm with obedient motes of time, bespeaks through photography a new philosophy of perception.

### *Assaying the Automobile*

AUTOMOBILES may be studied and criticized from many points of view: The designer looks at them with an eye to style; the engineer seeks engine efficiencies, among other things; the economist considers expense in fuel and cost of maintenance; the sales manager is concerned with "eye appeal" and competition. Ideally, buyers of automobiles would have all these points of view in mind when purchasing. Practically, however, choice of cars from the buyer's standpoint is haphazard. Such choice should be made principally in terms of driving safety, for the car which is a hazard to life and limb can hardly be considered a good investment, however stylish, efficient, economical, or aesthetically attractive it may be otherwise. The manufacturer's dilemma is essentially that of meeting demands for



these latter qualities and at the same time producing a machine which John Doe can manipulate with reasonable assurance of safety to himself and others, even after allowance is made for John Doe's occasional stupidity.

Reasonable assurance of safety, observers of the automobile maintain, is a function of driving, and driving is a function of timing, and timing in turn is a function of fatigue or absence of fatigue. Hence, according to Dean A. Fales, '14, Associate Professor in the Institute's Department of Mechanical Engineering, appraisal of the annual models which automobile manufacturers present to John Doe and his millions of brethren must be concerned not with appearance and economy but with provisions for insurance against fatigue. The 1940 models, measured by this standard, have improvement to offer, even though they fail of the ideal.

Since sight is the most important of all senses in driving, eye fatigue is the greatest hazard to both the driver and the other fellow; Professor Fales bases this judgment on his experience in driving thousands of miles testing models of all makes. The 1940 models contribute to cutting down this hazard by use of sealed beam headlights, which give about twice the amount of light hitherto available and which are excellent foglights when their down beam is used. But since the improved 1940 lights shoot a beam more of which is above the horizontal than was true of previous lights, greater consideration must be shown by drivers of 1940 cars when meeting cars of earlier vintages on the road. As soon as the public learns to use them properly, however, the new lights will help reduce driving dangers.

A second major improvement in the effort to render driving safer through the lessening of fatigue is the use of ventilating systems which provide fresh, heated air and which create within the car a pressure slightly higher than that outside. The increase of pressure prevents the infiltration of gases and fumes, not of carbon monoxide only, which tended to be drawn into older cars because their forward movement created a slight vacuum inside them with respect to the outer air.

The general problem of producing a car more nearly approaching the fatigueless ideal would involve a long program of research into the elements which contribute to wearying the driver. Questions of vision imposed by sloping and V'd windshields or by windshield glass that distorts vision or gives double vision; sloping rear windows which clog with snow; almost imperceptible but annoying vibration from reverberation within steel bodies; changes in the moment of inertia designed to iron out bumps but producing the necessity to struggle with the wheel when rounding curves; the low seating plane which forces the driver to keep his head swung upward; the long hood which at times tricks the wearer of bifocal eyeglasses into looking through the lower lenses, with disastrous results — all of these would have to be attacked. In addition, such other matters as wearying glare of the beam from headlights vulnerably mounted in the fenders would have to be taken into account. Accumulation of ice, for instance — one test car was found to have picked up a thousand pounds of it during a winter run — can be expected to alter the position of fenders considerably and hence to change the path of the light beam. Whether the public

would buy a safety car designed on the results of such study would still be a question, for the resultant machine would look far more like the high-riding vehicles of the past than like the bullet-sleek depictions of dynamic strength that capture present-day fancy.

### *The Pageant of Electricity*

ENOUGH electricity to keep a 50-watt lamp burning for 1,679,000 years was generated in this country in 1931, just a century after Faraday for the first time had converted mechanical energy into an electric current by spinning a copper disk between the poles of a horseshoe magnet, less than sixty years since steam had first been turned on in Edison's Pearl Street power station in New York. Those years saw the development of a curiosity into the fifth-ranking industry in this country, the application of inventiveness, ingenuity, and research to bring electricity into practically every aspect of man's work and man's life. The names of Galvani, Volta, Davy, Henry, Faraday, Edison, Bell, Gray, Marconi, Crookes, Maxwell, Hertz, De Forest, and — most recently — Armstrong have hence become more or less current conversational coin; to standard factual outlines have been already added the grace notes of anecdote and legend concerning this or that achievement; the "matter of electricity," as the historiographer would label it, thus has become part of the store of raw material on which writers of histories, of stories, of dramas and poems, may draw.

This "matter of electricity" resembles the "matter of Troy," for example, in tracing far back into antiquity; but differs from it in continuing to grow in the active present. Hence the writer who undertakes to tell the story of electricity sets out on a difficult task — striking a balance between the very long but sterile early centuries and the extremely crowded recent decades; preserving some time sequence in his narrative and yet correlating events which, far apart in time, were closely associated in the peculiar combination that is invention; giving due attention to the great ones of theory and the great ones of practice, yet seeing to it that the thousands of lesser contributors are not overwhelmed in the rush; and, above all, keeping his own sense of proportion.

To say that *The Pageant of Electricity* by Alfred P. Morgan, '12,\* meets all these stipulations with remarkable success is not unjustified. From the detailed and instructive chronological table which opens the book, through the lucid explanation of the nature of electricity which paves the way for a concise but alive treatment of the sterile centuries, the discussion is brisk and firm. Once he comes into the great past century, Mr. Morgan is generous with detail and honest in appraisal. His characterization of Edison as stimulator and irritant to others, his forthright reckoning of Samuel Insull, are but two of a large number of shrewd and interesting portrayals of individuals. He is equally successful in the difficult task of breaking the thread of one development in order to deal with another intervening event, and then returning to the first. Not the final book on the subject, for that will not for years be written, this is a noteworthy marker of the way.

\* New York: Appleton-Century, 1939. xxvi, 363 pages, \$3.50.

# Lost and Not Lost

## *Handmade Paper, Rich in Historical Associations, Has Special Meaning on Its 250th Anniversary in America*

BY DARD HUNTER

TWO centuries and a half have elapsed since the manufacture of paper in North America was begun with the establishment, in 1690, of a plant on Paper Mill Run at Germantown, Pa. William Rittenhouse, the first American papermaker, was likewise the first American Mennonite bishop, being elected to that position in 1703. He had been a Mennonite clergyman in Germany, where he was born in 1644, and was naturalized in Holland as a papermaker before his emigration to America in 1688. This first American paper mill was built to meet a growing need; printers in the Colonies had found the lack of paper their greatest handicap. Rittenhouse hence had as one of his partners in the enterprise William Bradford, the pioneer printer of the Middle Atlantic Colonies, who during the early years of the venture took practically the entire output of the mill. In 1705, however, Rittenhouse and his son bought out Bradford and the two other partners. Their first mill building had been destroyed by a flood in 1700 or 1701, and replaced by a new plant in 1702.

The demand for paper, which kept early printers constantly pestering their readers to save rags as raw material for manufacture — a bundle of rags was a highly acceptable subscription payment in practically all Colonial newspaper offices — may be interpreted as a symptom of democracy. This nation has relied greatly upon the free dissemination of news and views, and upon the free education of its citizens, both of which are operations readily measured in terms of the consumption of paper. That the trend thus early noticeable has continued into our own times appears in the fact that in 1938 — the date for which the most recent figures are available — 246 pounds of paper per capita were consumed in the United States. In impoverished India, by way of contrast, less than a single pound per person is used each year. One modern criterion of the civilization of a country is its per capita consumption of paper.

Two years ago, for instance, during an interview at his home near Wardha, central India, the Mahatma Mohandas Karamchand Gandhi said to me: "Of all the inventions of civilization the two most useful and indispensable are the crafts of cloth weaving and paper-making." While the Sage of India seems able to do with

but little woven cloth for his own personal comfort, it would, no doubt, be difficult for him to carry on his work as editor of the *Harijan* and as head of the All-India Village Industries Association, as well as his other National activities, without the medium of paper. In his school of papermaking at Wardha, students now are at work learning the craft which the Mahatma is seeking to put on an equal footing with weaving as a cottage industry. His hope is that papermaking and weaving will eventually be the salvation

of the destitute millions in India.

While in India this effort is being made to revitalize the art of making paper by hand methods — an art which has been extant in that country for 500 years — in our own land, in the 250th year of the art, there is but one lone mill capable of producing handmade paper. The supplies of paper that make possible the extreme contrast between American and Indian annual consumption are products of the machine. Only an infinitesimal proportion of America's yearly 246 pounds per capita is fabricated in the traditional way. In much of the East, however, the old methods still operate. In China, where the average standard of living might be judged comparable with that of India,

vastly more paper is used than in India. The difference is due to the use of paper in Buddhist and Taoistic religious ceremonies; in the rites of the great Indian religions — Hinduism and Mohammedanism — paper plays no part.

Hence papermaking is, from the Western point of view, an art both lost and not lost — an art which in our lives has had to yield place to the machine, but which we are happy to see continuing or being resurrected in other lands because its products are of surpassing beauty and fineness, and because its historical associations are so great with the professions and actions that have made our culture what it is. Americans who ponder upon their history can hardly escape sharing the profound reverence for paper which is held by the scholars of China, Korea, Japan, Mongolia, Manchuria, Tibet, Thai, and Indo-China.

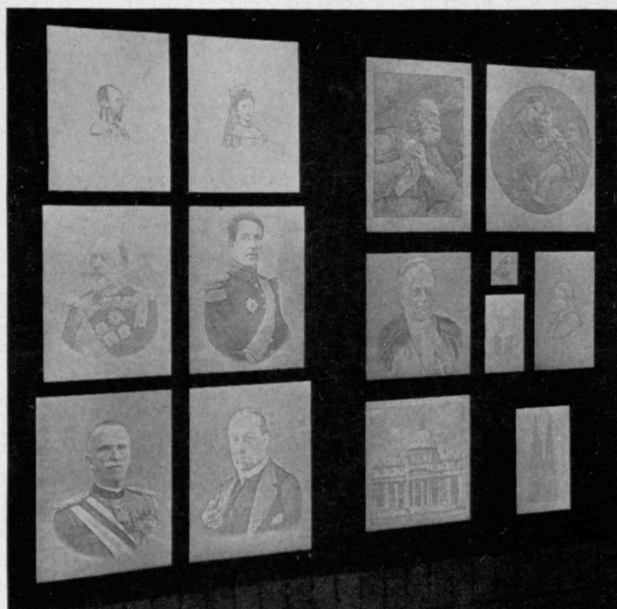
It has always been my contention that, because of certain technical limitations impossible to overcome in making paper by mechanical means, the strongest and



M.I.T. Photo

As medallion, the center motif of a Chinese wood block for printing ceiling paper for the Emperor Tung Chih





M.I.T. Photo

*These are watermarks of the light-and-shade variety, the finest forms produced by the art. In the Dard Hunter Paper Museum, windows arranged in the Japanese manner display them.*

finest papers cannot be manufactured on a machine. To produce long-fibered paper which is equally strong and resistant in all directions and which has extra tenacity through natural shrinkage, the hand method of fabrication must be employed. This statement does not necessarily imply that all paper made by hand is superior to that formed on a machine; but if the same furnish (raw stock) is used in both processes and the workers are equally skilled, the handmade sheets will result in higher tests (bursting and folding qualities).

The craft of printing has always received vastly more attention than the equally important and much older craft of making paper. For hundreds of years in Europe, and later in America, countless bibliophiles have been collecting and assembling all manner of material in any way related to the various phases of typographical design, printing, and bookmaking. The more ancient craft of papermaking, however, has received but scant attention, and even today, throughout the world, there are not above a half dozen serious collectors of paperiana. My own absorption in the technique of making paper by hand and in the history of this ancient craft dates only from 1912. The difficulty of procuring suitable paper for the books I had begun printing in 1903 caused me at that time to establish, near Marlborough-on-Hudson, N. Y., what was then the only mill in the Western Hemisphere where paper was made by hand. Though I had worked for many years in large, modern, machine-paper mills, it remained for this small hand mill to bring me into the elusive pursuit of collecting books, prints, and manuscripts dealing with old papermaking and watermarking. The collecting of books and pamphlets has continued until my library is probably the most complete extant on these subjects.

In 1923, *Old Papermaking*, my first full-length book embracing the ancient craft of making paper, was published. It had been preceded by three bibliographical

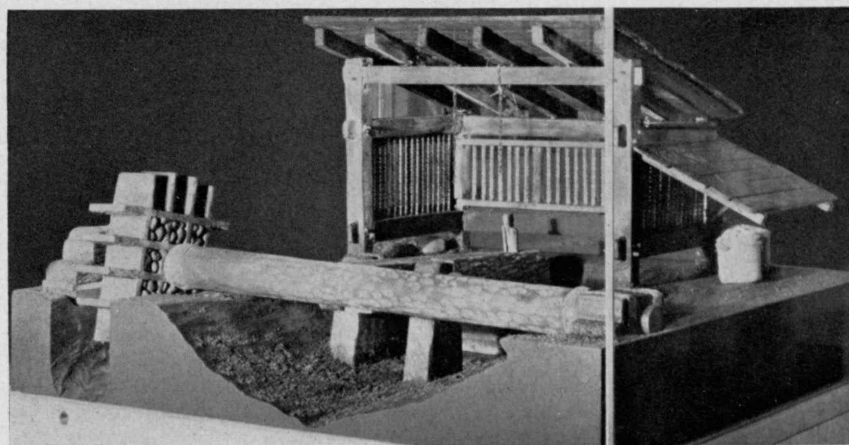
volumes. The success of *Old Papermaking* encouraged a continuation of books on the same subject, and I thereupon began journeys to all parts of the world to gather information, specimens of paper, papermaking equipment, and appurtenances from remote corners where paper is still made by hand. Aside from considerable travel in the papermaking centers of Europe, these voyages have included visits to China, Korea, Manchuria, Japan, Thai, Indo-China, Malay Peninsula, Java, Sumatra, Algeria, Morocco, Celebes, and Ceylon; to Madras, Bengal, Hyderabad, Kashmir, and other parts of India; to Mexico, Central America, Philippine Islands, Palawan, Arabia, Egypt, New Zealand, and Africa; to the islands of Rarotonga, Tongatabu, Tahiti, Moorea, Vavau, Hoopei, Tofua, Samoa, Savaii, Fiji, Taveuni, Hawaii, and other atolls of the Pacific Ocean — all localities where paper has been made at some period in one form or another.

The books reporting what I have observed of papermaking in various parts of the world now number more than a dozen and have been reviewed in nineteen different languages in twenty-three countries. It is my hope that at least one more may be issued, as only three countries — Burma, Tibet, and Indo-China — remain to be covered. I have visited the papermaking villages of Indo-China, but I must journey to Gyantse in Tibet and to the Shan territory of Burma before the next book can be compiled, for I have never written about anything that I have not actually seen.

The collection of papers and papermaking materials which now forms the Paper Museum of the Institute contains materials reflecting in many ways the reverent attitude toward a substance which we in the Western world for the most part regard as purely utilitarian. In the assembling of that collection — which has been made a museum collection because of the foresight of President Compton — I have had much contact with simple people of other lands, craftsmen and scholars alike, because of which the story of the material possesses human interest.

Exhibits in the Paper Museum include papermaking molds from China, Japan, India, Thai, Indo-China, and Korea. Among them is the original type of Chinese wove mold, such as Ts'ai Lun used when paper was invented during the Second Century. The first real step forward in forming sheets of paper was the laid transfer mold, upon the conception of which rests all modern papermaking, both hand and machine. The Museum has on display such a mold. One of the Museum's Japanese molds is capable of forming sheets of paper measuring three by six feet. In Japan the large paper is termed shoji and is used in lieu of glass in the windows of old-time Japanese houses. The most artistic and the strongest papers produced in the world today are fabricated from mulberry, mitsumata, and gampi barks and have their origin in the small mills of remote districts of Japan. Papers made from these fibers, as well as these exceptional materials in their natural states, are on exhibition.

From India the Museum's papermaking molds include appliances from the Punjab, Central Provinces, United Provinces, Hyderabad, Bengal, and from the age-old paper center of Nowshera in the mountains of Kashmir,



M.I.T. Photo

*A scale model in Technology's Paper Museum: A stamping mill used for the maceration of rags in Arach, north Kashmir. The stampers used in the earliest paper mills of Europe were founded on this seemingly crude appliance, and as late as the year 1861 the French government still insisted that all paper which was to be used in the stamp office should be beaten in this manner.*

the most beautiful locality in the world. The tools used in finishing Kashmir paper are shown, as well as the several steps in the preparation of Kashmir paper for calligraphy, so cherished by collectors of Oriental manuscripts. One exhibit is a collection of paper made by prisoners in Indian jails before such work was officially abolished — a change probably due to the extensive criticism of the practice by J. Lockwood Kipling, Rudyard Kipling's father, who was curator of the Lahore Museum from 1875 to 1893.

The last remaining handmade-paper mill in southern Thai is the ancient center at Bangsoom, a tedious journey from Bangkok through narrow, winding canals arched with *khoi* trees, the bark of which has for centuries furnished the Siamese papermakers with their raw material. In 1934 I was privileged to visit this mill where I was able to acquire molds and appliances.

In the villages of Yên-Thai and Lang-Buoi in the Tonkin province of Indo-China, paper has been made continuously along the same muddy roads and lanes for more than 600 years. We have in the Museum appliances from both these old paper-making villages.

The Koreans were probably the first artisans to color paper in the vat and also, it is thought, the first to make envelopes, antedating even the ingenious Chinese. The Museum has on display some of the earliest colored papers and examples of the earliest imperial envelopes of Korea, in brilliant tones that have not faded during their long existence. Many of the Korean papers were found in ancient Chinese temples whither they had been brought for the purpose of calligraphy long before the Chinese knew the secret of coloring paper in the vat. The southern Shan States of Burma have long been noted for their highly colored um-

brella papers, examples of which from Möng Kung, Kengtung, and Lawksawk are on display.

In the Museum are examples of all types of ceremonial papers used in Buddhistic, Taoistic, and Lamaistic religious rites, as well as original wood blocks used in Chinese, Korean, Japanese, Mongolian, Tibetan, and Sanskrit book printing. There are specimens of early Chinese papers dating from the Sixth Century onward; in fact, every papermaking country of Asia is represented. Primitive papers, as well as the tools used in their manufacture, have been secured from many of the South Sea Islands, from Java, Central America, Mexico, and Africa.

One of the most interesting exhibits is a specimen of the excessively rare printed prayer and its wooden pagoda receptacle, both made in 770 A.D. for Empress Shōtoku of Japan.

This prayer is the first printing known to exist in the world, antedating the earliest printing in Europe by nearly 700 years! In the Paper Museum may also be studied the earliest laminated paperboard, in the form of a small decorated coffin made in Persia and dating from a remote period. Likewise on display is pasteboard from Tibet and Manchuria which preceded by many years any attempts at its manufacture in the Occident.

The first European textbooks relating to papermaking date from 1568, and the Museum's exhibition includes the work of all the technicians who have discussed papermaking since that time. Included in the textbook display is the first delineation of a papermaker, an engraving executed by Jost Amman (1539-1591). Beneath the charming old print may be read a verse by the cobbler-poet of Nuremberg, Hans Sachs (1494-1576), praising the craft of papermaking. (Continued on page 124)



M.I.T. Photo

*This scale model in the Paper Museum shows a primitive paper mill in Yên-Thai, Tonkin, north Indo-China. Mills of this type are in operation at the present time in Indo-China and have been in use for the past 600 years. Much of the paper formed in these mills is used by the native people in religious ceremonies.*



# Malthus in Reverse

## *Through Scientific Accomplishment, Means of Subsistence Tend to Outrun Population; Substitution, Salvage, Synthesis the Great Triumvirate*

BY PAUL COHEN

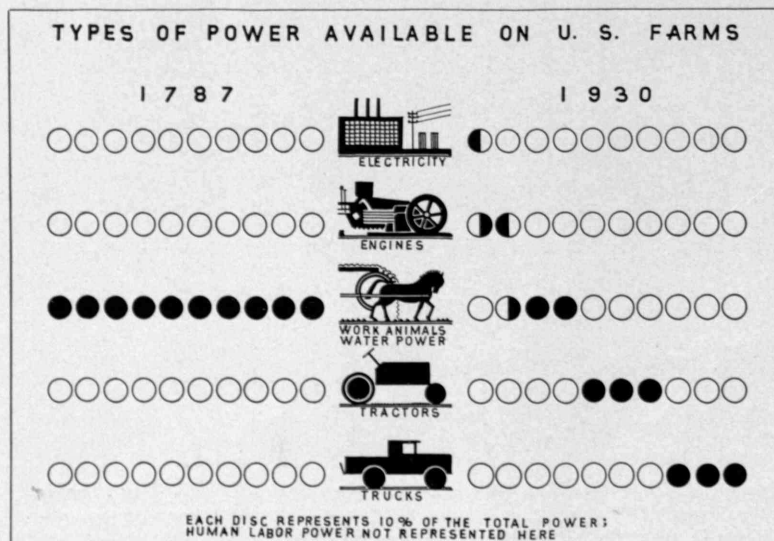
WHEN Malthus first conceived the phrase "struggle for existence," he saw a humanity blindly attempting to increase despite war, famine, and pestilence. To him and to many a penetrating mind in later generations, it appeared that only by the most merciless application of these checks could the reproductive urge of man be kept in equilibrium with the means of subsistence. In this grim and straightforward logic Darwin saw the key to his biological puzzles, and by it imperialistic policies have been justified for the past century; but the irony, nevertheless, remains that, as far as the Western world is concerned, these doctrines were intellectual driftwood before they were uttered.

The events of the past two centuries, and particularly of the 1900's, are increasingly at variance with any theory that man must jolly well manage with what resources nature has seen fit to grant him. At the beginning of this period, populations were stable and just about able to feed themselves. Since then they have not only grown at rates without historic parallel but, in the Western world, have also jabbered of a biological heresy known as a "high standard of living"; and a large part of these new masses actually do obtain considerably more than a bare subsistence. On top of these individual luxuries, with the drain on labor and material supplies which they imply, have come national luxuries which in their size are as notable as the increases in population. Yet only recently has the word "surplus" been added to

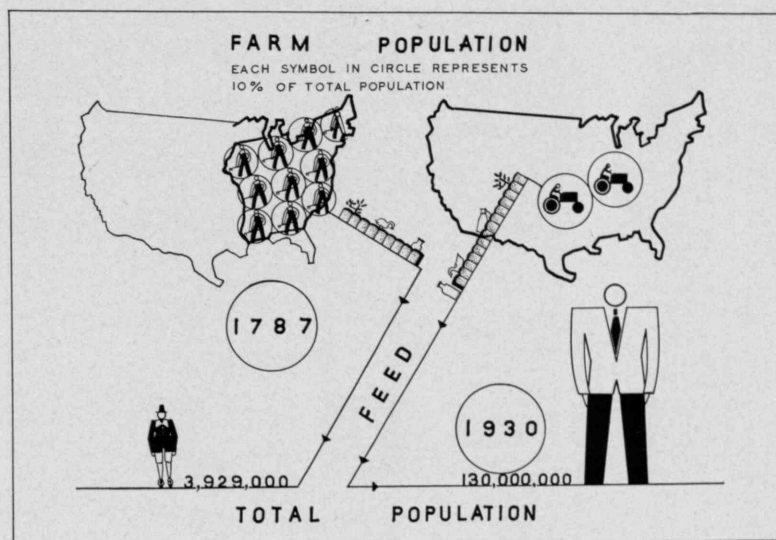
the vocabulary of the man in the street. Except for the present era and possibly a few other short periods far back in history, man has fought nature to a desperate and exhausted draw; so do still, without exception, all other animals. But with calm disregard for Malthus and "common" sense, science and its productive applications have neatly reversed this cardinal rule of life to read: "The means of subsistence tend to increase faster than the population."

To begin at the beginning: The status of the food problem is suggested by two newspaper items clipped shortly before the present war started. One states that sugar cane capable of producing 350,000 tons of sugar — "more than was manufactured in any year before the World War" — has been left standing in Puerto Rican fields; the other, that wheat at Liverpool has reached an all-time low, lower even than the previous lowest price set in Queen Elizabeth's time. Neither item occasioned much editorial fuss; repetition has brought such stories to the dog-bites-man class. In back of such situations, of course, is the long series of inventions and discoveries, amply detailed elsewhere, which have improved output per farm worker by the hundreds of per cent; which have maintained the fertility of intensively used soils year after year; which have extended arable lands into what were once subarctic or desert wastes; and which have spectacularly improved plant and animal stocks. Characteristic of this new order — U.S.A. version, at least — is the fact that baby chickens now consume more fish oils high in vitamins A and B than do baby humans.

In spite of the fact that five years ago a League of Nations report stated (and it could repeat today with even greater truth) that "in all countries the great mass of the population . . . do not reach the [simplest] standard of dietary excellence," the world has conquered famine. At least it has the means to do so. In 1787, 95 per cent of the American population lived on the land, and they lived as most of the world's farmers still do — as peasants who raised little more than enough for family needs. Today one person in five in this country works the land, and the government must practice crop control. If that is a paradox, consider Australia, where one-third of the nation produces twice as much food as the continent can consume. Or consider Russia, where the agricultural revolution is being



*Jeoh Ming Pei, '40*



compressed into two decades, with consequences even more sweeping than those implied by the epigram that the Battle of Waterloo was won on the turnip fields of England. The speed and brutality with which the Soviet Government collectivized its peasants may be better appreciated if less attention is paid to Marxian dogma about proletarian welfare and more attention paid to the fact that, with machinery and a higher level of administrative efficiency than would be possible to the individual muzhik, outputs per agricultural worker can rise to counteract military and industrial drains on man power. And that goes for Ohio, U.S.A.

If, because of their relative emptiness, Australia, Russia, and the United States are poor illustrations, one can point to Japan. When Commodore Perry sailed into Yedo Bay in 1853, he entered a country completely in the grip of the Malthusian devils, its population held static by periodic famines, pestilence, clan bickerings, and general misery. Today, with a population that is more than double that of Perry's time, Japan is still within about 15 per cent of being self-contained in food-stuffs, an agricultural feat which has been made possible mainly by the use of modern fertilizers.

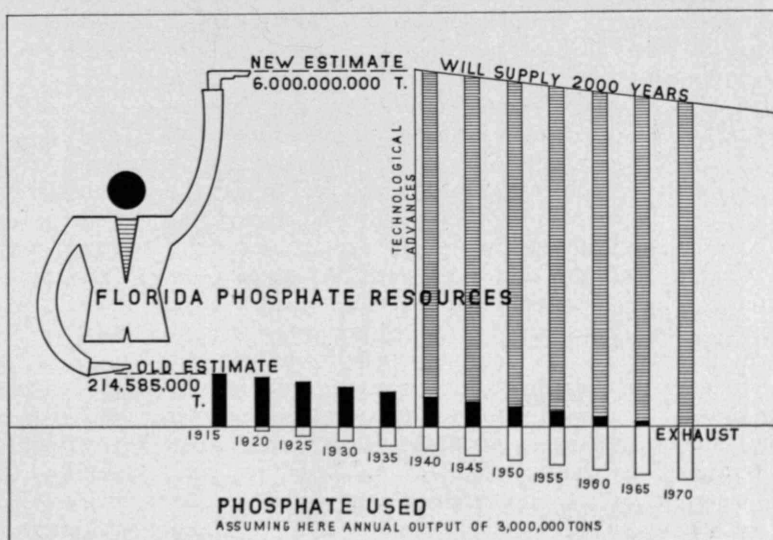
There is no reason to believe that this long-time trend toward increased farm productivity will slacken in the future. Whether or not the present factory-farm stage, as some have termed it, will be supplanted by a factory stage symbolized, perhaps, by the industrial-scale plants in which Germany is already synthesizing sugars from cellulose, one need no longer retire to the field of scientific fiction in order to consider the time when even the most densely inhabited areas — provided their populations remain stable so that an advancing farming technology can catch up with them — may find that self-containment in foodstuffs is again, after the lapse of centuries, a physical possibility.

As for the mineral supplies which now almost outrank food as a means of subsistence, evidence of diminishing pressure

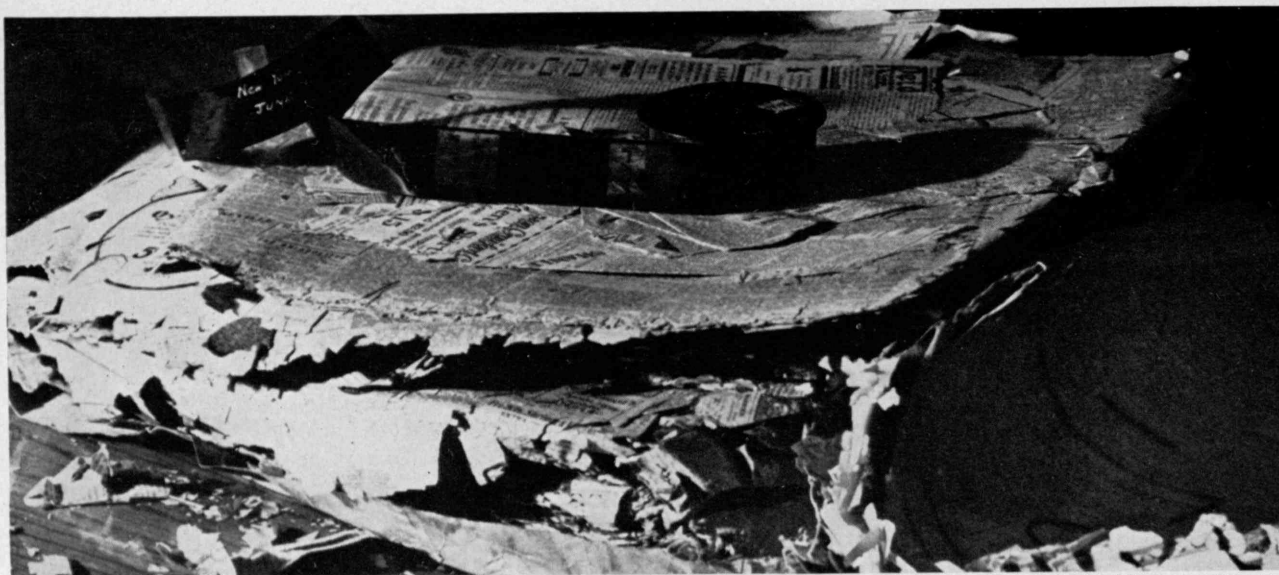
on resources is even more clearly defined. Not only are mineral deposits found to be larger than had previously been supposed, but resources are being tapped which are frequently, like vegetable matter, universally available and, with care, inexhaustible. Prospecting, for instance, is no longer an art reserved for desert rats and donkeys. As now practiced, it is an embryonic science which deduces from variations in the pull of gravity and the velocity of sound, and from subtle geological indications, what lies underneath the surface, thereby making mineral finds less and less dependent on some lucky stumble over an outcropping or an oil seepage. The success of this geophysical activity, particularly in petroleum prospecting into which most of the effort has gone, is indicated by the fact that in spite of demands whose

increases are measured by the hundreds of per cent, the conservationists' day of reckoning seems farther off than ever before.

Nevertheless, although the Russians have found nine times as much coal in Siberia as was known there in 1913, new sources are generally overshadowed in importance by old ones: mines that have been worked and abandoned and deposits that have long been known but ignored because they were too "poor." In 1900, ores containing 2 per cent or less of copper were valueless, in fact were not considered ores. With improvements in mining technology, however, the chief of which (the flotation process) should rank as one of the few truly revolutionary means of the Twentieth Century, it became profitable to handle not merely such virgin ores but even the dumps left by older methods. This trend to the use of lower-grade deposits is born of necessity, but the position of the mineral-consuming industries is decidedly not that of an arctic adventurer making a forced meal of his mukluks. The prices of most metals have been declining in relation to the all-commodity index, steel (in this country), for instance, dropping from about \$160 to \$60 per ton in the past (Continued on page 126)







*Metsel-Laytha from Black Star*

# Lilliputian Libraries

*Microfilm Finds Steadily Increasing Use in Preserving Records  
and Saving Space—Need for Standardization of  
Materials and Techniques Grows Equally*

BY RALPH D. BENNETT

WAR and microfilm appear to flourish together. The current conflict, for instance, has been characterized by an almost frantic effort to copy on film the archival treasures of the democracies — so that if the originals are destroyed, future generations may at least see what the originals looked like. A previous war stimulated the Frenchman, Dagron, to one of the earliest and best-known efforts in microphotography. In November, 1870, during the siege of Paris, he and his assistants sailed out of the city in two balloons, taking equipment to make microfilm and pigeons to carry it. Their aim was to establish a pigeon post for communication between Paris and the outside world. One balloon was brought down within the Prussian lines, but the other, carrying Dagron, passed over and was landed successfully. After many difficulties Dagron reached Tours with enough equipment to establish the post, and during the following months he transmitted over a hundred thousand dispatches.

Dagron used the then new wet-plate process — a process which is unsurpassed even at present for the reproduction of fineness of detail but is too cumbersome and inconvenient for ordinary copywork. Modern techniques in microphotography have drawn heavily on those of the motion-picture industry, whose machines and materials have been adapted, with only small alterations, to the recording of published material. The current fad for miniature photography has accelerated and simplified the adaptation.

The ease with which business documents may be copied on film has led to the establishment of microfilm service for commercial organizations. Automatic cameras, which can be operated by unskilled clerks, are provided, and the film processing is carried out at central mechanized laboratories. This industry, though young, is vigorous and growing. The copying of public records, to preserve them or to save space, has become an important field for microfilm. For libraries the copying of old newspapers has been imperative because of the fragility and impermanence of wood-pulp paper, as the photograph above emphasizes. Microfilm also offers to libraries means of obtaining facsimile copies of books otherwise unavailable because of their rarity and of permitting widespread use of books which, because of their great value or worn condition, cannot be generally handled.

As is to be expected in a new and growing development, microfilm assumes a variety of forms, varying from single motion-picture frames about one inch by three-quarters of an inch, mounted separately, to 100-foot reels of film bearing more than three thousand images. Most commercial work is now done on 16-millimeter film handled in 50- or 100-foot rolls. Some modern commercial cameras photograph simultaneously the front and back of a document, placing the images side by side on the film and making two independent copies. Such a machine is to a large extent automatic. It takes the documents as fast as they can be handled

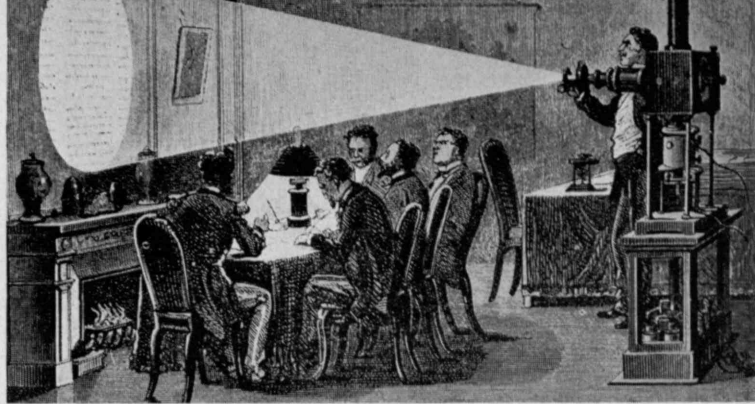
by a clerk and controls the illumination, film feed, and document alignment. When any of the necessary functions fails, the machine stops and calls for help by sounding a gong. The viewing machines for business purposes can be simple, since a high standard of reproduction is not necessary for ordinary legibility and the images of the documents do not have to be enlarged to great size.

The form of microfilm used by libraries for newspaper reproduction has become fairly well standardized — single perforate or nonperforate 35-millimeter film being employed. The single newspaper page is reduced by a ratio of about 17 to 1 (approximately half the reduction used by Dagron), giving an image about one inch by one and a half inches, which is placed with its long or vertical axis parallel to the length of the film. A 100-foot reel of film accommodates about two weeks' issues of a metropolitan daily and a correspondingly greater number for smaller newspapers. Thus for newspapers the 100-foot unit has the advantages of covering a convenient time span, of storing on a spool of convenient size, and, with a proper reading-machine reeling mechanism, of permitting easy selection of pages. A reel of this size is not well adapted to most of the scholarly and library uses of microfilm, however, since it will accommodate 3,000 or more ordinary book pages — several volumes of normal size — or a very large number of separate short references. The adequate indexing of so much material on one unit becomes difficult, and the selection of any single page involves, on the average, reeling fifty feet of film through the machine.

The inconvenience of the 100-foot unit has led to the development of several other ways of handling of library material on film. Short extracts are often photographed and processed on strips of ribbon film which can be stored in small pillboxes. If the strip is more than three feet long, however, it becomes inconvenient to handle and difficult to keep clean. Another form employs strips eleven frames, or about eight and one-half inches, long. The first frame of each strip is devoted to the title of the book or paper, the strip number, the pages which it includes, and any other pertinent information. These strips may be stored in envelopes open, for convenience, on one long side; one of these can contain an entire normal volume. The envelopes

*A microfilm reading machine embodying latest refinements in design*

*Eastman Kodak Company*



*The Bettmann Archive*

*Receiving the news by Dagron's pigeon express: Messages reduced by microphotography during the siege of Paris in 1870-1871 were sent away by carrier pigeons, and at the place of destination were projected and enlarged for transcription in the manner shown by this contemporary print.*

may then be filed on edge in shallow drawers between indexing cards which enable easy reference. Another scheme places multiple rows of images on 35-millimeter strip. Such film can be prepared at present only by photographing many pages simultaneously; hence to place the images in proper sequence, two copies of a book must be available and their pages cut apart. This form, though not useful for rare books, could well be applied to publication of material still in manuscript. The result of this process, a complete volume in half a dozen strips six inches long, is enticing to those to whom the storage of books is a problem. The ultimate subdivision of the 100-foot reels is the single frame which, for convenience in handling, can be mounted in pasteboard film slides two inches square. Though these slides yield little saving in space when applied to books, they have a field of usefulness in the reproduction of single large documents, drawings, paintings, and other art objects, the record of which can of course now be made in color.

Standardization, which the microfilm industry has not as yet attained, is now a focus of much interest. The placement of newspaper material, for instance, is probably as well standardized as any item in the industry, but there is still dissension as to whether single perforate or nonperforate film is more desirable. Standard formats for the placement of book material on 35-millimeter film, advocated by L. A. Sayce of King's College, Newcastle upon Tyne, and Vernon D. Tate of our National Archives, seem likely to be adopted. Procedures are not the only question; standards of quality for microfilm are also greatly needed, and almost no progress has been made in their direction. The final test of quality for samples of microfilm is legibility. But legibility is hard to define and harder to measure. It can be defined in terms of the reading speed, the accuracy, and the comprehension of the "average reader." Speed, accuracy, and comprehension can be measured after a fashion, but to get the average reader requires a sampling process, the value of whose result will be found to depend heavily on the constitution of the sample. Obviously, no simple legibility test has yet been established for determining the quality of microfilm.

The three agencies which determine the legibility of a final projected microfilm image are the camera, the emulsion, and the projector. The production of high-quality microfilm requires a camera whose lens will give a sharply defined image over an adequate field. Lenses can be made to give (Continued on page 130)



# To Terminate Termite Trouble

## *Methods for the Protection of Dwellings Against the Foraging of Man's Insect Rivals for the Use of Wood*

BY ROBERT C. DEAN

**A**NTEDATING man as residents of the earth, termites have in recent years become active contributors to his worries because man undertakes to use wood and wood products, thus disrupting the termites' natural job of breaking them down and returning them to the earth and the air. Of very ancient origin — fossil termites of the same kind as are now doing damage throughout the country are known to be millions of years old — the termites are most closely related to cockroaches, though they have been a distinct group for ages. Cellulose is their primary food and is usually secured from the wood into which they burrow.

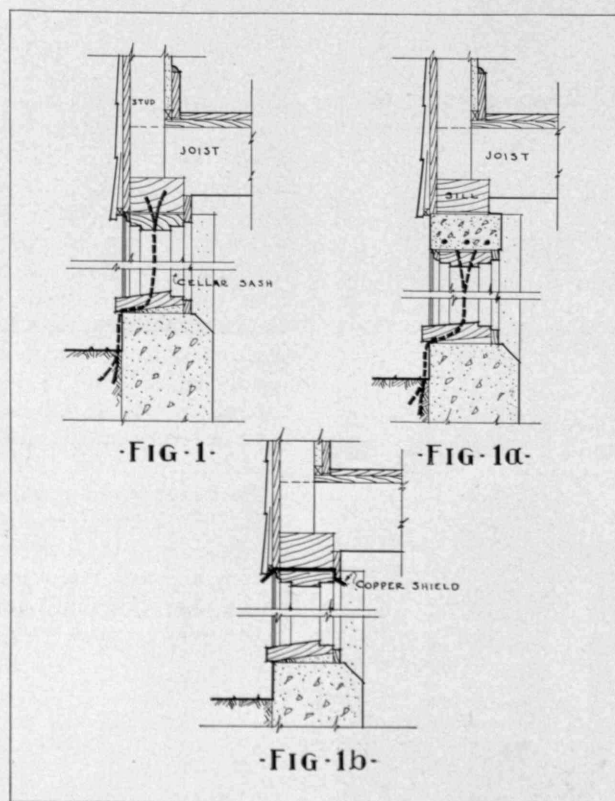
Until man began to change their conditions of living, termites were well taken care of — the wood of forests and undergrowth was a lavish food supply, the earth provided ample shelter for the subterranean members of the group, all was merry as a marriage bell. Man's effort to monopolize timber for shelter rather than for food, however, upset this idyllic scheme of things — at first for the better, from the termites' point of view, for man in his use of wood accumulates large and concentrated stores of cellulose in which a termite might well expect to find his heaven. During present years, though, man is beginning to knock the termite utopia to pieces. The protection of the wood in buildings against destruction by termites is a focus of public interest about which much has been written. Excellent pamphlets on the subject have been prepared in Washington and elsewhere and are in wide circulation. Their field is so vast, however, that they can give little of the detail necessary for economical and complete protection of a building.

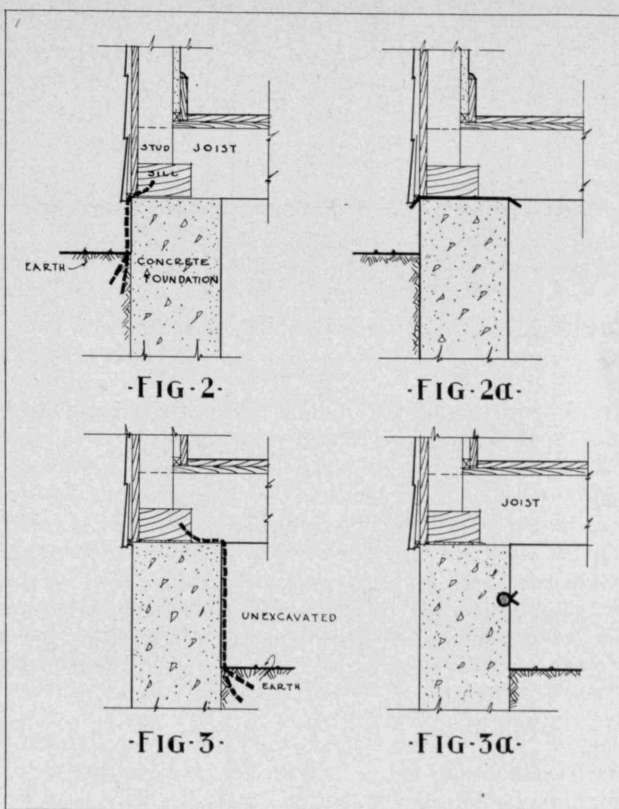
Those termites which dwell in nests in the earth and forage in near-by wood for foodstuffs to be subsequently transported to the nest — the subterranean termites so called — are the principal enemies to man's desire to pre-empt wood for his own uses. These earth-dwellers enter the wood from the ground or from another piece of wood which is in

contact with the ground, and feed within it, keeping its outer surface intact as a protective shell. To reach such a store of cellulose, termites construct tubes, or covered runways, from their nests over any intervening inedible material such as stone or concrete. They live in the dark by preference; the tubes — skillfully engineered — are their means of preserving the desired black-out between nest and food supply.

Protection of buildings against subterranean termites takes advantage of the wood-eaters' fear of light: Inspection which finds and destroys the tubes is one method; barriers over which the tubes cannot be built are another. This article seeks to present and explain a group of practical methods by which the termite can be forced into the open where the tunnel can be seen, or by which construction of the tunnel can be blocked with a permanent barrier. Steps necessary to protect camps, sheds, barns, or outbuildings, however, are not discussed here, since they are adequately covered in other publications. In general, an angle turn of metal with a two-inch flange will stop the insect engineer. Securing full protection, then, becomes essentially a question of where and how to place the metal shield.

Figure 1 shows a cellar window usually buried in an area. This window is set in a concrete wall which, in itself, is impervious to termites. The dotted line shows the path of termite tunnels, up the concrete wall where observation is difficult and then through the wood sash into the structural timber. Figure 1a shows a method which can be used at no additional cost if it is considered before the concrete is poured. Here the sash are set four or six inches below the wood sill, and a concrete beam is poured over them. Reinforcing rods at the corners prevent development of cracks which otherwise might admit the termite to the structure. True, the wood sash may be eaten away, but the damage may proceed no farther. Figure 1b shows the same result achieved by the use of a termite shield of copper extending beyond the sash. The ends should be turned into a





raggle — a groove in the concrete — and calked with cement. This turning into the raggle is a necessary precaution to prevent the termite's crawling under the shield and out the ends to the sill. A fourth method of correcting this condition is the use of metal sash in cellar walls.

Figure 2 shows the progress of the termite tunnel up the face of a foundation wall, which is here shown as of dense concrete. If the finish grade is kept at six inches or more below the bottom of the clapboards, an owner may, with the minimum of inspection, find and destroy any tubes which start up the wall. It should be remembered that destruction by termites is a slow process. Once these tubes have been destroyed, if the house itself is carefully built according to the principles set forth herein, the owner need feel no alarm for its safety. To make inspection easier, the concrete may be painted white. Figure 2a shows the copper shield which sometimes is used but more often is in disfavor because of its expense in meeting this condition.

Figure 3 presents a condition which exists under all unexcavated portions of a house. The common practice is to lower the grade enough to allow adequate crawling space. If frequently inspected, this area is safe enough. Difficulty of access to this portion of a structure, however, often causes it to be neglected and thus gives the termites opportunity to build tunnels up the inside of the concrete foundation wall. There are various methods of combating this danger. Several may suggest themselves to the reader. The one shown in Fig. 3a consists of a round rod wrapped with a copper strip. The flanges of this strip are tacked to the inside of the form before the concrete is poured, and upon pouring, the strip becomes a part of the wall. When the forms are removed, the bottom flange should be bent out, forming a shield completely around the foundation wall. Care should be exercised to prevent laborers from knocking the shield off when spading the concrete. A company operating in the eastern states have a very ingenious patent covering a solution of this problem. They cast

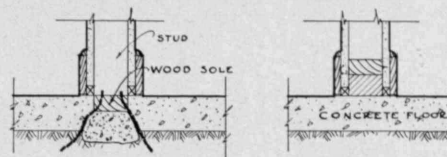


FIG-4

FIG-4a

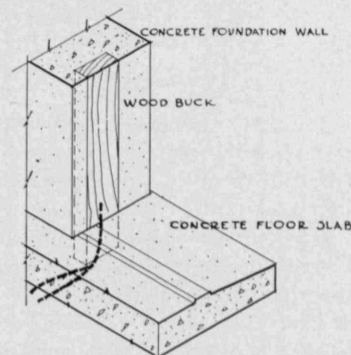


FIG-5

a slot in the wall and later put in an angle-shaped strip of copper which is calked into the foundation with rich cement mortar.

Figure 4 shows a common fault which will occur in almost any cellar if careful supervision is not exercised, and which offers serious termite hazard. In order to keep plaster off the cement floor, the builder has laid a sill of concrete, built and plastered his cellar partitions, and then laid the cellar floor. This practice should never be permitted. Figure 4a shows the proper method of constructing cellar floors and partitions. The floor should be laid monolithic and continuous from outside wall to outside wall. A sill of brick or concrete should then be laid on this floor and the partition built on it. Of course the interior sill does not stop the termite, but the concrete floor does. The interior sill merely serves to protect the partition from dampness.

Figure 5 presents another condition that only the most careful supervision can correct. Here the wood bucks for a bulkhead door, a garage door, or other opening have been cast into the concrete. The buck forms a nailing piece for the doorframe and a highway for the termite. It should be cut off above the grade of the cellar floor, and at least four inches of concrete should be between it and the soil.

In Figure 6 (page 124) is shown a foundation built of some material other than dense monolithic concrete. Here the danger arises from voids where mortar has not completely filled the spaces between the cement block, stone, brick, or other material. The only satisfactory solution for this hazard is the continuous termite shield of copper shown in Fig. 6a. The joints between the sheets must be thoroughly interlocked; the flanges must extend outward and downward for about two inches.

Figure 7 shows a condition which usually exists when masonry steps or porches are brought up to a doorsill. Termites may enter the fill under the porch slab and, through the inevitable crack between it and the foundation wall, may attack the sill (*Concluded on page 124*)



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# THE INSTITUTE GAZETTE

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PREPARED IN COLLABORATION WITH THE TECHNOLOGY NEWS SERVICE

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## *Comestible Compactions*

PANTOPHAGOUS as ever, the Bureau of Alimentary and Potatory Studies, which is an active adjunct of The Review, has conducted an investigation lately into the gustatory qualities of that already widely publicized pemmican upon which Admiral Byrd's hardy explorers will batten while on the trail, and which was developed by Robert S. Harris, '28, Assistant Professor of the Biochemistry of Nutrition, Department of Biology and Public Health, who is serving as nutritional adviser to the expedition.

The BAPS findings checked well with blindfold tests carried out by members of the expedition who selected it as the most pleasing among a group of samples of different kinds of pemmican used by previous expeditions from this and other countries. BAPS reports the aroma as being reminiscent of well-roasted beef that has reposed in the icebox overnight, and the taste as recalling that of a rather rich gravy. In texture the Harris pemmican, heated as a gruel — as it is to be used — is thickish and, in a word, chewy; the investigator judged that it would stick well to the ribs. Professor Harris prepared this pemmican for use as the main food for sledge parties on the trail.

The new pemmican contains precooked dehydrated beef (25 per cent), precooked dehydrated beef liver (5 per cent), hydrogenated vegetable oils (30 per cent), precooked dehydrated vegetables — beet, tomato, parsley, celery, pimiento, onion, and dextrinated soybean; skim-milk powder, wheat, corn, barley, wheat germ, yeast, malt, calcium salts; and, as condiments, salt, pepper, garlic, and monosodium glutamate.

In the polar regions man must eat from two to four times as many calories as in temperate zones, and man's stomach is not built to take this large amount of food in the form of temperate-zone vegetables. Because it packs 173 calories into an ounce, and because it is precooked, the new blend possesses important advantages over earlier pemmicans. The high caloric value lightens the sledge load and makes it easier for a man to consume his full food requirements. Precooking saves precious time and fuel in the preparation of the food.

Professor Harris is now engaged in analyzing the pemmican to determine accurately its food and vitamin content — a study which time did not permit before the expedition started. Results will be radioed to the explorers, who will daily take capsules containing adequate amounts of all necessary vitamins. Nutritional deficiencies, a source of much trouble in past expeditions, are not expected to bother this one. From Antarctica, the expedition will keep in touch by radio with the Institute's food laboratory, and Ernest E. Lockhart, '34, a member of the expedition who last year was carrying on advanced study under Professor Harris, will make observations of nutrition in the ice fields.

"It kept the body twitching, but not the soul," said the English explorer Watkins in comment upon the pemmican he used in 1930. Well-peppered fatty sawdust offers a close replica of the flavor of the earlier compounds. But the new form has a pleasant, durable flavor. As it contains stable fats and only 2 per cent moisture, it need not be packed in cans which would add further weight to the sledge load. In addition to its weight-saving virtues, the more appetizing new pemmican is expected to have psychological benefit and thereby twitch the soul.

## *Alumni Activity — How It All Began*

BY C. FRANK ALLEN

MY remembrance goes back to the formation of the Alumni Association, and some reminiscences on alumni matters may be of interest. The Class of '73 set the ball arolling at its first annual dinner in January, 1874. But the Alumni Association was not formally organized and its officers were not elected until its first annual dinner in January, 1876. Robert H. Richards, '68, always popular, was chosen president; Charles R. Cross, '70, secretary, not on account of the beauty or legibility of his chirography, but there is no question of his efficiency. I. S. P. Weeks, '71, was an excellent choice for vice-president. The Class of '73 was, of course, represented, Francis H. Williams being its selection for the Executive Committee, to which body I was elected from the Class of '72. The Class of '69, having only four graduates, was not represented. Later, Howard A. Carson of that Class became president of the Alumni Association and, earlier, as a nominee of the Association, was the first alumnus elected to the Corporation.

Things went on smoothly with the Alumni Association, as my recollection goes. The annual dinners were most satisfactorily carried out; the speakers were well selected. The meetings preceding the dinners were, however, rather perfunctory and uninteresting, with an attendance estimated at 2 per cent of the alumni body. For some years the Alumni Association also sponsored a reception to the graduating class — a happy function which in some way later came into disuse.

However, to digress for a while: In 1896, several years after my return to the Institute as a member of the Faculty, Harry W. Tyler, '84, asked me to act as clerk at a meeting to organize a Technology Club, a venture independent of the Alumni Association, however. The organization of a corporation is a very technical proceeding, and at this meeting, through no fault of mine, a minor technical matter was neglected, with the result that although the Technology Club was organized, it was not as a corporation. James P. Munroe, '82, was its first president and I was its first secretary. Later, when a building was acquired, a corporation was formed

successfully. The Club was a popular rendezvous for the Faculty and many downtown members. It was, among other things, a dining club, and it was found to be a convenient place for class dinners.

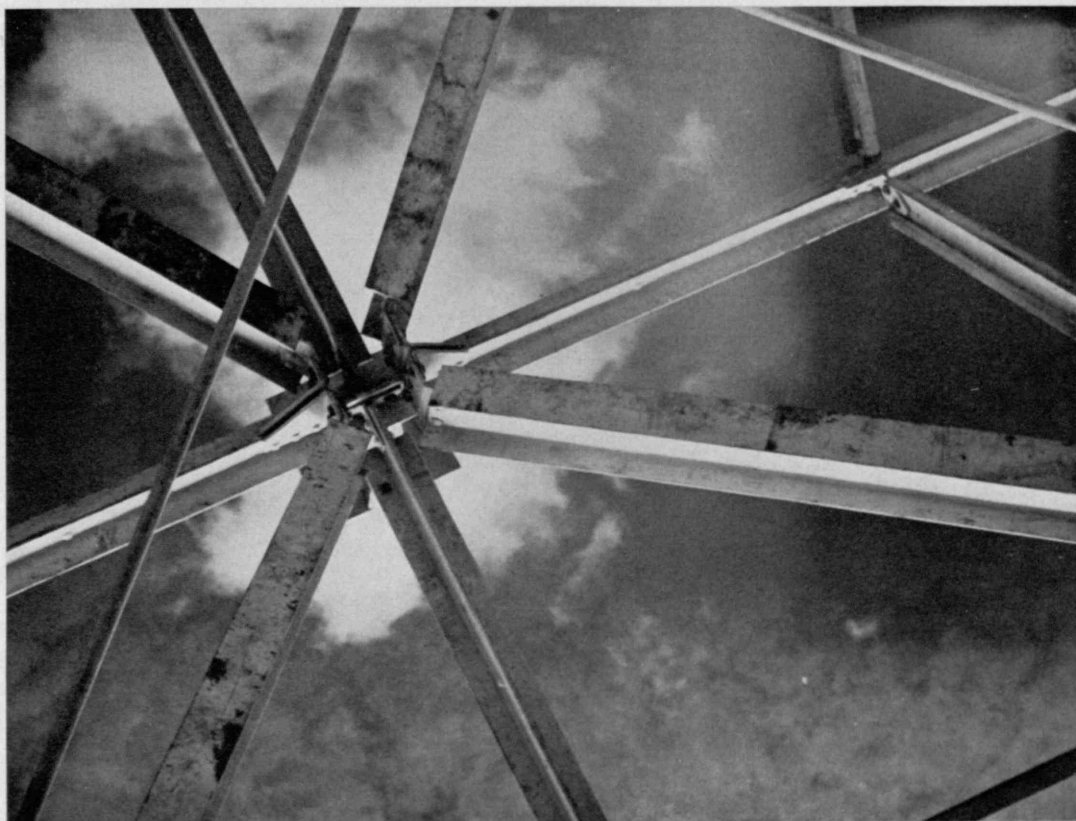
Without any ringleader, some of us got together late in 1896 and started the Association of Class Secretaries. According to its constitution, its object is "to promote class spirit and the welfare of the Institute, and to systematize all matters pertaining to class organization and record." The first secretary of the Secretaries was Walter B. Snow, '82, and the assistant secretary was Frederic H. Fay, '93, who afterwards became secretary. Both were among the most efficient of the Class Secretaries. Each of them had been, or later became, president of the Alumni Association. The Association of Class Secretaries was a very healthy body. An early activity was the providing for a Technology night at the Pops concerts. I was never active in that important venture. There was a good deal of vigor and hilarity at these Pops concerts, as was natural. Symphony Hall was bought out, and the proceeds showed a substantial profit over expenses, opening the way for further activities. Among these were the five-year reunions which aroused much enthusiasm and might be considered milestones in Technology history.

During the Harvard-Technology disturbance of President Pritchett's régime, the power of a body of Class Secretaries organized in opposition to the merger, supplemented by the convenience of a Technology Club as a place to get together, may well have been the turning point in that controversy.

The suggestion for a Technology alumni magazine came from Arthur D. Little, '85. A committee of three, consisting of Little, Munroe, and myself, were appointed by the Association of Class Secretaries to start and conduct *The Technology Review*, whose Volume I, Number 1, was dated January, 1899. Munroe carried on as editor for many years with the assistance of his efficient secretary at his place of business. Without this act of devotion on his part, it is at least doubtful if the venture could have succeeded.

Although the Alumni Association was the recognized organization, the Technology Club and, more especially, the Association of Class Secretaries were the bodies which were doing things. The small Executive Committee of the Alumni Association was limited in the scope of its activities and was therefore not fairly subject to criticism. Then in 1908 someone woke up; I think it was Albert Farwell Bemis, '93. The Alumni Association appointed a committee to confer with a committee of the Association of Class Secretaries. I was a member of the latter committee. Later the matter came into the hands of a committee of three: Bemis, myself, and one other whose name I do not now remember. There were two main propositions: one, to absorb the Association of Class Secretaries into the Alumni Association; the other, to create an Alumni Council, based on the general form adopted by the Class Secretaries. When put to vote, the Alumni Association favored the latter scheme, and the Alumni Council substantially in its present form came into being in 1909. It was two years after this that nongraduates were admitted to full

"Steel," by John Ward Greiner, graduate student in Chemical Engineering, won first place in a photographic exhibition sponsored recently by the Institute Faculty Club. Students as well as staff members entered prints,



student participation being through the auspices of the Combined Professional Societies. For other prize winners, turn the pages that follow . .



membership in the Alumni Association. At an earlier time when this had been proposed, I, with others, had strenuously objected, and the proposal did not carry. It is needless to say that I was quite wrong.

The basic structure of the Alumni Association's constitution has not since been changed. The revision of 1932 dealt mainly with methods of nomination and election. The provision for the presentation of only three people as nominees for term members of the Corporation may, however, be considered fundamental.

Almost as soon as the Council had been established, Isaac W. Litchfield, '85, one of the most active of the Alumni, was hell-bent to have the Association of Class Secretaries commit hara-kiri, and a meeting was called to bring this about. Litchfield's enthusiasm and loyalty were beyond question. He visualized possible conflict between the two organizations, also questioned the further value of the Association of Class Secretaries, and, I believe, saw some advantage in abolishing that organization, whose activities in the Harvard-Technology affair had made the organization unpopular in some influential quarters. I believed him to be mistaken and put up a vigorous opposition, pointing out that any antagonism from the Class Secretaries was sufficiently negated by the fact that the Secretaries had contributed \$1,000 in turning over *The Review* to the Alumni Association, since the latter had little financial resource. In fact, when I assumed the duties of secretary of the Alumni Association, that organization was in the red.

It was asserted that there was no important function left for the Class Secretaries, but this turned out to be incorrect. When the drive for the Walker Memorial was on, the value of the organization was evident and acknowledged, and I think it was also true when the dormitory drive was on. It is not out of place to state that in all the years that have elapsed, the relation between the two organizations has always been harmonious. It has been recognized that the Association of Class Secretaries is an adjunct of the Alumni Council, which alone has the power of initiation. At the meeting called in 1911 to consider the abandonment of the Association of Class Secretaries, the Institute's Acting President, Arthur A. Noyes, was present, and when he found that only 50 per cent of the Secretaries were also class representatives on the Council, he favored continuance, and the organization was not disbanded. Litchfield afterward became assistant secretary of the Secretaries and continued in that office until his death. Through force of circumstances the Association of Class Secretaries has been inactive of late, but I am not convinced that its usefulness is ended. If anyone should raise the question whether the Association of Class Secretaries had any right to do the things which it did, the answer may well be that anyone who fails to do something which ought to be done, and which nobody has a right to stop him from doing, is of little use in the world.

When the Institute moved to Cambridge, the Walker Memorial provided a dining room for faculty members, who could hardly be expected to lunch at the Newbury Street house of the Technology Club. Since, in addition, the Technology Club if located in Cambridge would

not be conveniently accessible to downtown Alumni, it then necessarily came into disuse. So far as I know, it has not ceased to exist as an organization or surrendered its charter as a corporation. In more favorable times, it may again function, perhaps by having periodic lunches or occasional dinners at some downtown club or hotel. The Faculty Club, which became most successful and active under the early presidency of Dr. Tyler, does not take the place of the Technology Club and cannot be counted an alumni organization, although Alumni other than those on the Faculty are eligible and welcome.

Prompted partly by the history of these organizations, I desire to pay tribute to the memory of James P. Munroe and Harry W. Tyler who, in my judgment, contributed more than any others to the interests of the Alumni, both within the Association and in directions independent of that organization. In addition, their services directly to the Institute were far from negligible.

### *Whence They Come*

IT would be possible to form a combined national congress and league of nations at the Institute, for among the 3,118 students now registered are representatives of all the forty-eight states, of four United States territories, and of forty foreign countries.

The Institute's home state, represented by 979 students, has by far the largest enrollment, while New York sent 522 to take second place, and New Jersey 173 for third. Other leaders are Pennsylvania, 152; Connecticut, 124; Illinois, 115; Ohio, 96; District of Columbia, 59; Missouri and Rhode Island, 50 each; Michigan, 44; California and Texas, 42 each. Idaho is at the bottom of the list with one student.

Among the foreign countries, Canada sends the largest contingent, numbering 47. China is second with 29; Brazil and Cuba are tied for third with 11; Turkey is fourth with nine; Mexico and Thai are fifth with eight each. There are seven students each from the Netherlands and Norway; six each from Colombia and France; five each from Argentina and Switzerland; four each from Belgium, England, Germany, India, and Italy; three from the British West Indies; two each from Denmark, Honduras, Russia, and Venezuela; and one each from Australia, Chile, Czechoslovakia, the Dominican Republic, Guatemala, Haiti, Japan, New Zealand, Peru, Poland, Rumania, Scotland, Spain, the Straits Settlements, Sweden, Syria, and the Union of South Africa.

Of the 230 students from outside the United States, North American countries contribute 55; Central and South American, 30; European, 51; Asiatic, 52; African, 1; Australian, 1; and the insular countries, 40.

### *Fairgoing: Version of 1876*

THE Centennial Exposition of 1876 in Philadelphia outdid the World's Fairs of 1939 in providing the Technology students of the time with an opportunity of demonstrating unusual methods of fairgoing. Corporation and Faculty co-operated on the earlier occasion, so that students went as a group, pitched camp near the

Exposition, and settled down for a two weeks' visit. E. L. Zalinski, then first lieutenant, Fifth United States Artillery, and Head of the Department of Military Science and Tactics, reporting to President Runkle for the academic year 1875-1876, told of the pilgrimage thus:

Many students were desirous of visiting the Centennial Exhibition, as it would present a vast field for study. On account of the expense involved, a large proportion would necessarily be prevented from attending, if only able to go individually. This objection would be obviated in a great measure if a number would unite in the movement. Inquiries were made to ascertain the cost, and it was found that if three hundred went, the expense of transportation to and from Philadelphia, board and lodging for two weeks would probably not exceed \$25.00 per capita. The Corporation and Faculty therefore determined that the trip should be made.

The corporation of the University of Pennsylvania courteously tendered the university campus for a camping site. Efforts to get the necessary tents and camp equipage from the United States having failed, an act was passed in the state legislature authorizing the loan of camp equipage to such schools as are, by the law of the state, required to give military instruction. We were thus enabled to procure the necessary outfit for camping. Through the intervention of Enoch Lewis, Mr. Phelan of Philadelphia kindly tendered us the use of sufficient lumber to floor the tents and for other purposes. Mr. Lewis procured for us, also, some engine headlights to illuminate the campus. Efforts were made to procure reduced rates of admission to the Exhibition, but they were unavailing. Honorable George B. Loring offered to us the use of the Massachusetts State Building as a place of rendezvous. Mr. and Mrs. Thomas Webster of Philadelphia were untiring in their efforts to secure for the Institute every facility which

might be required. Professor Stillé, provost of the university, placed at our disposal certain facilities which the university building afforded. Professor Haupt, Professor Richards, and other professors of the university aided us in many ways to perfect our arrangements. . . .

On June 8, at 4:00 P.M., the party, numbering something more than 370, started from the New York and New England Railroad depot, in a special train for Norwich. The party consisted of members of the Corporation, Faculty, graduates, former students, students, and friends of members of the Institute. We were favored with being accompanied by a few ladies. At Norwich the boat was taken for Jersey City where the party arrived next morning at about 6:00 A. M. After some vexatious delay at this point, a special train conveyed the party to Philadelphia, arriving at about 10:00 A. M. . . .

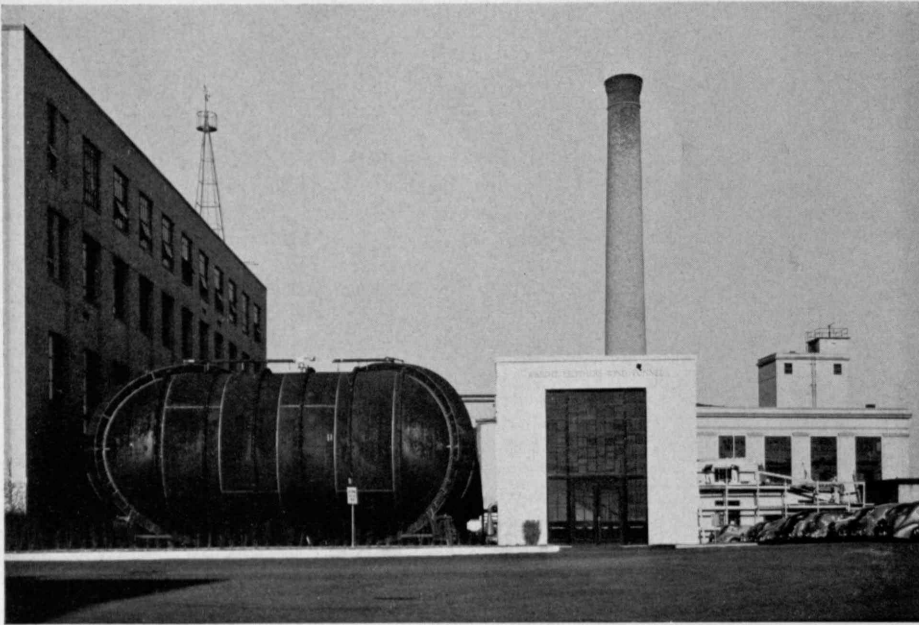
A wagon was sent daily to the Exhibition grounds with a luncheon which was served at the Massachusetts State Building between the hours of 12:00 M. and 2:00 P. M. Every aid was given us by General Oliver, in charge of the building, and he was ever on the alert to add to our comfort and pleasure. Mrs. Vinton freely permitted us to use her kitchen with all its appurtenances. This arrangement enabled our students to enter the Exhibition grounds in the morning and remain until evening without being put to any extra expense for a midday meal. Honorable John Cummings of the Corporation, who was in Philadelphia, aided us materially in getting permission from the authorities for the entrance of the wagon and servants, as also in other matters.

The matter of feeding so large a number with but improvised appliances and with persons inexperienced in such work, was one of great difficulty. Many of those to be served were not able themselves to perceive the difficulties inherent in the work and expected as much as if the party consisted of but twenty or thirty. The difficulties were overcome in a



. . . Too disgusted even to warn his follower, this gull wings above his reflection in the photograph, "Ivory Soap," by Professor John Chipman of the Department of Metallurgy, which took second honors in the Faculty Club's photographic show . . .





*The Wright Brothers Memorial Wind Tunnel*

*M.I.T. Photo*

measure and only the most fastidious remained dissatisfied with the commissariat. With the experience derived from this, great improvements now appear to be feasible. All, however, was done that was possible under the existing circumstances, and considering the pecuniary limits no complaint can be reasonably made of the fare. Messrs. Blodgett and Knapp of the Institute attended to the purchase of the provisions and superintended the management of the dining room . . .

In establishing regulations for, and enforcing the discipline of, the camp, it was the aim to have the minimum restriction and military work consistent with maintaining good order and securing the proper sanitary conditions necessary for the health and comfort of all. As the object of the expedition was to study the Exhibition, as the change of locality, climate, water, and mode of life were in themselves trying, every effort was made to enable the students to economize their vital energies for the work in hand. The military work and display were reduced to the minimum, and in every case were made to yield to the foregoing considerations. The conduct of the students was exceptionally good and the subject of general commendation. I do not think it is possible to gather from any other college or school in the United States so large a body of young gentlemen who would so earnestly enter into the spirit of their work, accomplish the object of the expedition, and have conducted themselves with the same degree of propriety and consideration. As the members detailed for daily guard were not obliged to remain in camp, but report for duty in time to be posted on a specified relief, reliance was placed entirely on their sense of honor and duty.

The adjutant of the battalion, E. F. Williams, '78, aided by the sergeant major, F. R. Loring, '79, performed the duties of their office in the issuing of orders, making details, and so on, most efficiently. This involved no little labor and responsibility, requiring great judgment and tact on the part of the adjutant. The signal and ordnance officer, W. B. Bradford, '77, aided the commandant materially as a staff officer in the execution of many details of the camp.

In the management of the camp and in the execution of all necessary regulations, efficient aid was given by the chiefs of sections, their assistants, and the commissioned officers of the battalion. The following is the list of the chiefs of sections: Section A, Captain D. Pierce, '78; Section B, Captain I. Rich,

'78; Section C, C. F. Lawton, '77; Section D, T. E. Schwarz, '76; Section E, J. B. Gardner, '73; Section F, W. H. Shockley, '75; and Section G, Adjutant E. F. Williams, '78. The assistant chiefs of sections were: Section A, First Lieutenant E. C. Miller, '79; Section B, First Lieutenant L. O. Towne, '78; Section C, J. P. Gray, '77; Section D, C. T. Main, '76; Section E, A. Austin, '73; and Section F, C. A. Church, '75.

For the entertainment of the students a piano was rented and a number of musicians were hired to play every evening. The dining room was cleared and hops were held therein. The students of the University attended, bringing their lady friends. Many lady friends of the students present in the city also attended. All this added very much to the pleasure of our students and caused a larger proportion to

remain in camp at night than would have otherwise been the case. . . . In preparation for the expedition and encampment, in the labors pertaining to his office as quartermaster during the encampment, in the closing up of its affairs and return of the large amount of camp equipage and other property, E. H. Gowing, '77, displayed marked ability and business capacity. The duties were laborious and difficult and their satisfactory execution deserves more than a passing notice. He was assisted by Messrs. W. B. Fisher, '78, and James H. Tibbits, '79. . . .

### *Secretaries, Funds, and a Tunnel*

THIS caption is not the summary of a tabloid romance, nor yet of any recent detective story; rather, it epitomizes the 209th meeting of the Alumni Council, which, held in November, began by being a meeting of the Association of Class Secretaries and ended by being appreciative audience of an explanation of the Wright Brothers Memorial Wind Tunnel by John R. Markham, '18, Assistant Professor of Aeronautical Engineering.

The Association of Class Secretaries is a stable compound, reacting very slowly; its November meeting was the first in some twelve years, according to Frederic H. Fay, '93, who, as secretary, presided at its meeting after the gavel had been turned over to him by Raymond Stevens, '17, Vice-President of the Alumni Association, who opened the evening's proceedings. Summarizing the accomplishments of the Association of Class Secretaries, Secretary Fay observed that, when needed, they would be found ready to bear a hand in alumni activities of the future as in the past. [That past is surveyed in this issue on page 118.] New officers elected were Samuel C. Prescott, '94, Secretary; Bryant Nichols, '07, Assistant Secretary; Arthur A. Blanchard, '98, Orville B. Denison, '11, and Azel W. Mack, '15, Executive Committee members. The Secretaries voted to ask the Institute to serve as financial agent for the investment of their funds, which were pointed to with pride. Future

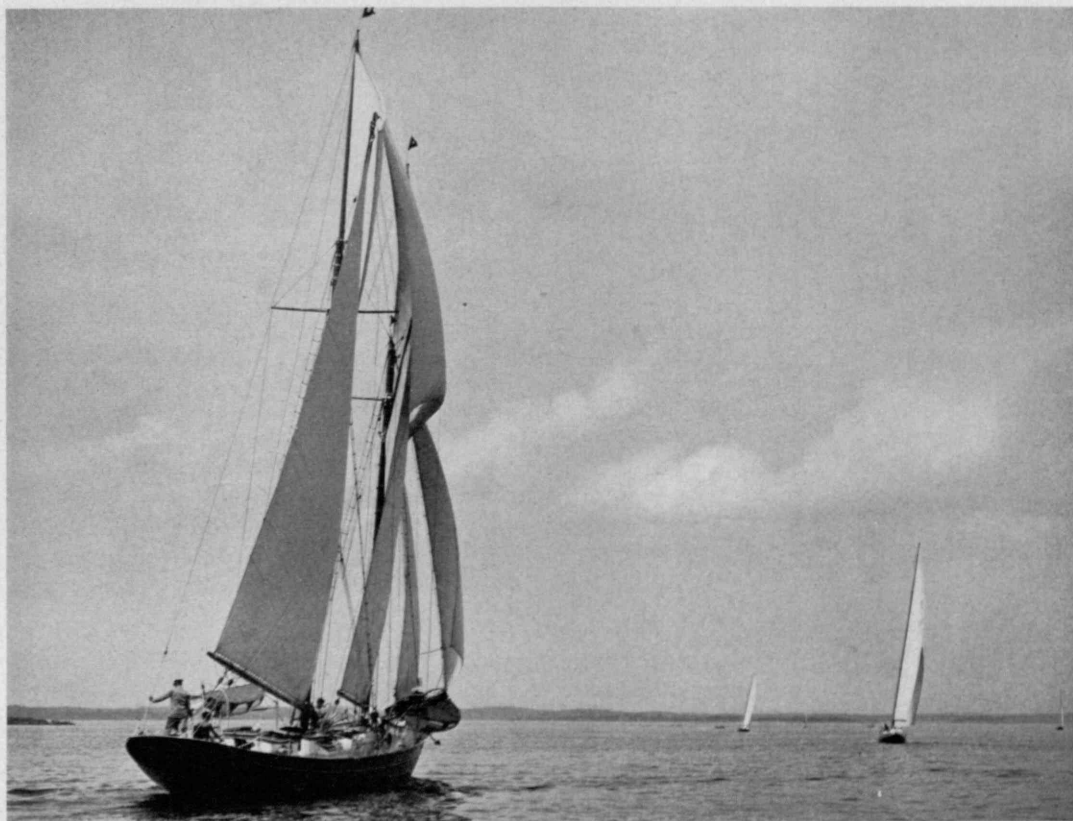
activities of the Association of Class Secretaries will be considered and proposed by the newly elected officers. The meeting of the Alumni Council was concerned principally with amendments to the Association bylaws necessary for the implementation of the change in the constitution, endorsed last May by the Alumni Council, which provides for the establishment of an Alumni Fund. Lawrence Allen, '07, as chairman of the committee named to draft the needed changes, reported them and explained that necessary agreements with the Institute have been discussed. After consideration, the report was accepted, and the amendments were approved.

Pointing out that rapid increases in the size and velocity of airplanes necessitate larger wind tunnels and may threaten tunnels with early obsolescence, Professor Markham described the new Technology tunnel as having been designed to meet probable progress in aerodynamic science and hence as sure to be effective for some time to come. Since tests of full-sized planes under conditions of flight are almost out of the question, he said, recourse must be had to a tunnel, in which air is moved past a fixed model. Proper dimensions of the model, with proper density and velocity of the moving air, can be combined to give for the model under wind-tunnel conditions a Reynolds number corresponding fairly closely to the Reynolds number for a comparable full-sized plane in actual flight. If the numbers — which represent the ratio of mass forces to viscous forces — are the same or nearly so, measurements of forces on the model serve as an index for the calculations of corre-

sponding forces for the full-sized airplane. Since changing the density of the air inside the tunnel is necessary in order that the factors for the model may be so adjusted as to give a desired Reynolds number, the Institute's new tunnel is of welded construction, calculated to stand some four times atmospheric pressure or to be exhausted to about one-quarter atmospheric pressure.

When air at atmospheric pressure is being driven through the tunnel at 250 miles an hour, Professor Markham told the Council, a satisfactory Reynolds number can be secured for a full-sized plane by use of a model of 7.5-foot span, or about one-eighth to one-tenth the size of the actual ship. At one-quarter atmospheric pressure, air can be driven through the tunnel at 400 miles an hour, thus permitting investigations at high speed. Local velocities on parts of the model under these conditions may approach the speed of sound.

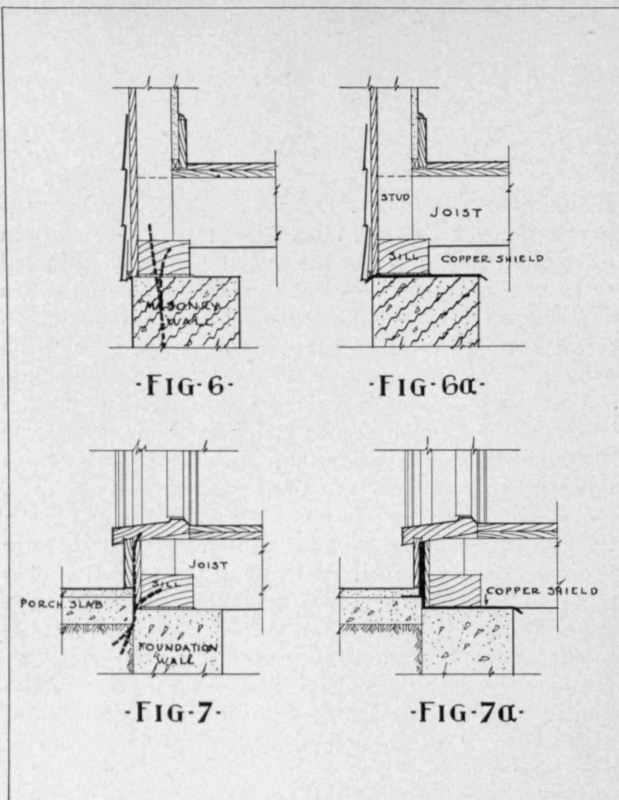
Slides showing the efficient cradle suspension of the tunnel, which eliminates the need for expansion joints; the six-blade variable-pitch propeller, which is driven by a 2,000-horsepower motor; and the highly ingenious system of platforms and balances on which the model is mounted and which permits the investigator to read off six components at a remote station were used by Professor Markham during his talk. Jerome C. Hunsaker, '12, Head of the Department, during the discussion which followed, explained to the Council's satisfaction and the speaker's embarrassment that the balance and platform system upon which much of the value of tunnel investigations depends was designed by Professor Markham.



... "Out of Marblehead," by Greer Ellis, '38,

research assistant in the Department of Mechanical Engineering, was third-place winner in the Faculty Club's exhibition of photographs.





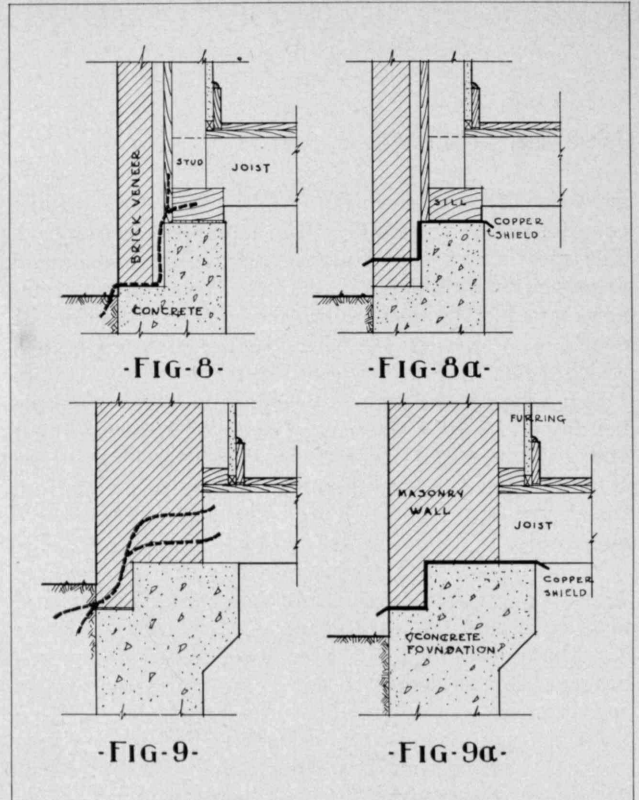
## TO TERMINATE TERMITE TROUBLE

(Concluded from page 117)

and boarding. Figure 7a shows a method of correcting this danger, and of providing flashing against dampness in the sill. A copper shield has been installed which runs under the sill and turns downward two inches inside the foundation. Toward the outside it turns upward, forming an inverted U. It then runs between the slab and the topping. The shield is sufficiently flexible to prevent breaking by settlement. If the ends of the shield are carried six inches beyond the porch and turned into foundation raggles, the porch will be proof against invasion at this point. The eastern company already mentioned have an even more ingenious patented solution of this difficulty: A slot is cast in the concrete wall, into which the copper strip is grouted, and the strip is then run up and down in the manner just described. The suggestion has been made that a chair of concrete cast on the porch slab and sitting on a groove in the concrete wall would meet this condition. It would if reinforced, but would not provide the flashing against moisture offered by either Fig. 7a or the patent described.

Figure 8 shows the most perplexing condition in housebuilding. Here the architect has been careful to provide a step to protect the sill from water which has penetrated the brick veneer. This is generally approved as the best method of beginning a brick veneer wall, but the necessary weep holes at the bottom afford easy access for termites. Once through the brick, they may work unseen. The best solution for this problem is shown in Fig. 8a: a continuous copper shield — expensive but the only foolproof system that has been suggested.

Figure 9 shows a solid masonry wall. Termites may enter through cracks or deficiencies in the mortar joint, the occurrence of which even the most careful supervision cannot entirely prevent. The through



shield of copper shown in Fig. 9a is the best safeguard for this type of construction. The additional expense of a house built in this manner justifies the cost of the continuous shield as it affords protection both inside and out.

Doubtless many other solutions for these problems will present themselves to those familiar with termite habits. The conditions here shown are those which most commonly occur in work of the highest class and represent conditions encountered in practice. They have been discussed with builders and experts in termite control. The use of poison, either in the ground or in impregnated wood, has not been touched here because of its as yet doubtful permanence and relatively high cost.

## LOST AND NOT LOST

(Continued from page 111)

The development of the hollander is likewise graphically set forth with books and prints covering the entire history of maceration from 1579 to the present day.

Not until the Eighteenth Century was a search made for papermaking fibers other than linen and cotton rags, the materials used exclusively in Europe up to that time. The first book to be printed in Europe on paper made from material other than linen and cotton rags was issued in France in 1784; its paper was fabricated from grass, lime-tree bark, and other forms of vegetation. The earliest European book in which paper was made from but one material, other than rags, was published in Paris in the year 1786; one part of the edition was on paper made from the bark of the lime tree, whereas the remaining books of the edition were on paper manufactured from marsh mallow. The Museum is fortunate in having every known book relating to the evolution of papermaking fibers as well as actual specimens of the first papers made from such substances as wood, straw, cottonstalks, thistlestalks, burdockstalks, tree leaves, water moss, turf, garden (Concluded on page 126)

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## LOST AND NOT LOST

(Concluded from page 124)

mallows, vine tendrils, sawdust, beechwood, hop tendrils, potatoes, aloe, clematiswood, willow, rush, cabbagestalks, wasps' nests, pine chips, poplarwood, cat-tails, and numerous other materials.

The principle of the modern Fourdrinier machine is founded on the original laid transfer mold invented in China and used by the eunuch Ts'ai Lun during the first part of the Second Century. Though the paper machine was invented in France in 1798 by Nicolas Louis Robert, the apparatus was patented and first constructed in England, owing to the disturbance brought about in France by the French Revolution. In the display case dealing with the paper machine are, among other items, autographed letters of John Gamble relating to his original patent of the Fourdrinier machine. They suggest interesting contrast with one of the most instructive exhibits — a full-sized equipment for the making of the finest handmade papers — which, procured in southern England, was brought to America especially for exhibition.

The fascinating art of watermarking, which began in 1270, is comprehensively covered in exhibits of various tools and equipment used in producing the finest light-and-shade watermarks as well as original specimens tracing the marking of paper from 1270 to the most modern type of portraiture. The difference between a handmade watermark and an emblem made on the paper machine is also shown, together with a complete history of trade marks in paper. The Museum possesses all of the original experiments of Sir William Congreve, the inventor of colored watermarks. These include the first three-color watermark ever made and, in manuscript, the volume compiled by Sir William covering his experiments. At the beginning of the Nineteenth Century a vast amount of counterfeiting was perpetrated in England, and Sir William sought to devise a method of watermarking paper which would render the falsification of bank notes more difficult than the simple preventive means then in use. The Museum has the actual watermarks made by Sir William in 1818 for the Bank of England. The present-day money papers of Great Britain are based on these early Nineteenth Century experiments. But the Museum has much earlier specimens of paper money. The Chinese were the originators of this kind of currency; only through the writings of Marco Polo, after he visited China, did Europeans first learn about paper money. The Museum has specimens of such currency from the earliest times.

The only handmade-paper mill now existing in the Western Hemisphere is my mill in the old New England village of Lime Rock, Conn. Some 40,000 are found in China; 1,500, in Japan. Their lone Occidental contemporary, completely equipped with every appliance and apparatus for the manufacture of the finest printing, writing, drawing, and etching papers, has a capacity of about five reams of paper a day. A brochure relating to the Paper Museum is now in contemplation, and all of the paper that will be used in this publication has already been made at Lime Rock. The typography will be done in the small print shop connected with the Museum.

The modern requirements of papermaking and printing will not be entirely overlooked, and eventually there will be exhibits dealing with the relation of papermaking to the graphic arts. The acquisition of present-day papers and mechanical appliances does not present a problem, as material of this nature is easily collected. There would be little use in devoting much of the Museum's space to modern papermaking materials and equipment, which may be seen in any up-to-date paper mill. At present the plan is to limit the scope to exhibits on the evolution of papermaking by hand in the Orient from the beginning of the craft in the Second Century to the present time, and in the Occident from the Twelfth Century to the introduction of the paper machine.

## MALTHUS IN REVERSE

(Continued from page 113)

sixty years, and even farther in terms of purchasing power. To all intents, engineering developments can actually create natural resources, a phenomenon which is neatly illustrated by the successive estimates of phosphate reserves in Florida. In 1915, says the record, it was believed that such reserves totaled 214,585,000 tons. In 1924 the estimate was 294,000,000 tons. By 1937 this figure had been increased to 552,252,000 tons (the mining companies had been hard at work during all this time); and in 1938 it was admitted before a joint congressional committee that, excluding the highly phosphatic bedrock, Florida alone possessed 6,000,000,000 tons of phosphate reserves. As the *New York Times* commented: "The alarming figures originally given out were those compiled at a time when the flotation and modern electric-furnace processes of reduction had not been introduced into the phosphate industry and when only the richest 'ore' could be utilized." Similar is the situation with a material of more immediate political significance; processes have already been developed by which our strategic requirements of manganese, most of which is imported, could be met from domestic low-grade ores, though at a sharp increase in cost.

Yet the greatest promise of independence from the tyranny of geological heredity lies in quite another direction — in the great triumvirate of modern industry known as substitution, salvage, and synthesis. Until about half a century ago, engineers frequently had only little better than Hobson's choice when it came to selecting materials for new structures. There were cast iron, steel, wood, copper, lead, tin, and not much else. Rarely could more than one material do the job correctly; often none of them could. Then aluminum was made commercially available, and designers today also have nickel, magnesium, tungsten, synthetic resins like bakelite, cellulose derivatives like celluloid, natural and synthetic rubbers, and so on interminably. Particularly when combinations of these substances are considered does a great deal of overlapping in properties occur, and the possibilities of substitution increase enormously as cost factors are removed.

Even where balance-sheet criteria do rule, competition between materials remains an invariable pattern in the system. When it is con- (Continued on page 128)

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## MALTHUS IN REVERSE

(Continued from page 126)

sidered, therefore, that the same trends are evident in this country, it is not surprising that German designers have been able to replace exotic materials like copper and nickel with homemade materials like plastics and the light metals, or that synthetic yarns have gained heavily over wool and cotton. Substitution, moreover, does not necessarily interfere with quality; only when trends are forced into hothouse growth do ersatz campaigns leave a bad taste.

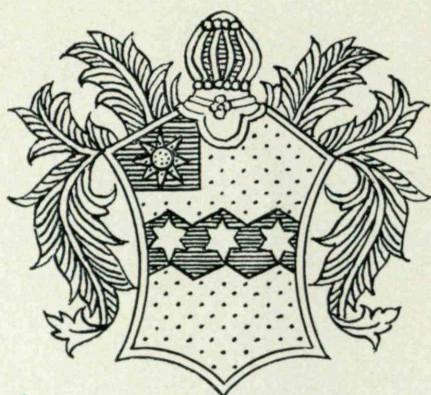
Preoccupation with the motives that drive this desperate striving in totalitarian countries perhaps obscures the many highly desirable attributes of a self-contained state. In nature, a population sufficient unto itself is also stable and enduring, in equilibrium — like wild plants — with its resources. If some relatively rare substance, a nitrogen compound for instance, is required for existence, it is recirculated complexly but completely. Such cycles have striking analogies in one salvage center — the junk industry. With no encouragement from those groups who generally bless public services (exceptions will be noted later) and with the ruggeddest of materialistic motives, the scrap industry is probably doing more to conserve our mineral resources than any other force — with the exception of technology itself — in our economy. Scrap is an inevitable by-product of industrial states, and during the past half century large-scale organizations have grown up to gather, classify, and return it to industry. Bureau of Mines statistics show that, in the United States, about as much steel, copper, and aluminum is now coming from junk yards and other secondary sources as is being taken from the mines. Since secondary sources can also supply rubber, paper, and textiles by the hundreds of thousands of tons and can do so without benefit of foreign exchange, in Germany the junk business has been made almost a state institution, with movies, lectures, and political pressure to make the people salvage every possible rag, bone, or bit of metal. Japan got into the swim with a waste-reclamation week.

Japan has reason to be alert about reclamation, for more than one picture has come from China (from Spain also) showing scrap being collected from wrecked cities almost before the dust had settled. It is the inevitable illustration of how human wills can shape the form and implications of every opportunity presented to them. Scrap is the product of the richest and most accessible mine a country possesses — the structure it lives in. The sidewalks of New York, for instance, cover more than a hundred thousand tons of almost chemically pure copper in underground power cables; and in the automobiles, buildings, coins, and machinery of this nation is a far vaster reservoir of metal, a pool whose most important item is close to one billion tons of steel. A people with its morale unbroken and its back to the wall would not hesitate to turn part of this capital reserve into armaments even if to do so meant destroying much of its outward civilization. Germany did something ominously similar when she stripped the copper roofs from her churches in the World War, and she added a clowning touch by relieving Berlin and Prague of their iron fences previous to the present war. (Continued on page 129)

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## MALTHUS IN REVERSE

(Continued from page 128)

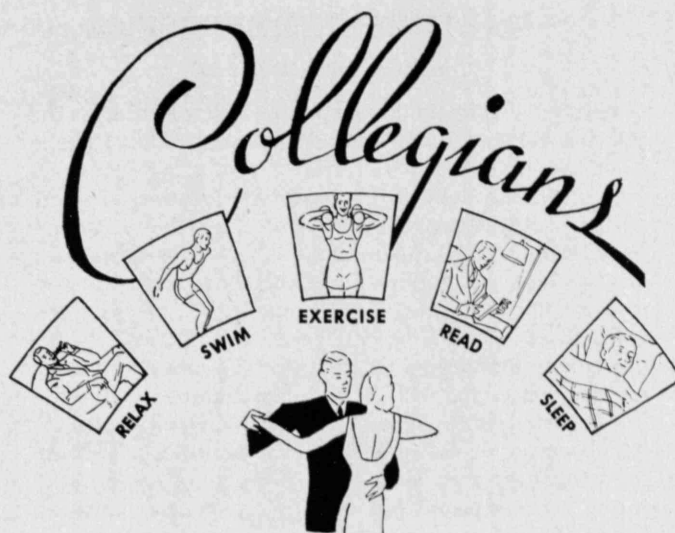
But demands change without regard to those materials which have been accumulated in the past; the cycle between consumption and production contains tremendous leaks; and attempts to meet material requirements from domestic sources (ignoring the wisdom of such a course) would not have a chance even during peace were it not for synthesis — for the growing list of man-made molecules.

The shift of petroleum refining from straightforward distillation processes to methods which frequently split up and reform molecules into more suitable shapes is characteristic of the increasing refusal to accept natural materials or the lack of them docilely. Germany and England (France, Italy, and Japan on a smaller scale) are indulging in the drastic molecular architecture of converting from two to four tons of coal, depending on the process, into about one ton of liquid fuel. These bold attempts at what might almost be termed transmutation recall an equally spectacular attempt by Germany to overcome a natural limitation — the fixation of atmospheric nitrogen. History unalterably shows that the process developed by Fritz Haber not only provided Germany with nitrogen compounds under war pressure but, as later modified, proved profitable enough to be adopted by most of the industrial nations. In 1934 over five times as much nitrate was made synthetically (by several methods) as came from natural sources in Chile.

All of this is more or less well selected evidence of a situation accepted almost as dogma by Western peoples: that man is gaining in control over his environment, that production has triumphed over population. Perhaps this trend will die out; perhaps it will be tremendously accelerated if present studies on the nature of matter produce engineering applications in keeping with their scientific significance. For the decades immediately ahead, however, one can look for a slowly increasing ability to achieve social and political objectives in spite of what are by present standards inadequate or ill-balanced natural resources. Aside from recourse to better methods of finding minerals and of extracting them, which, one might say, is begging the question, there is the growing number of materials which are produced from perennial vegetable matter like cellulose, proteins, and so on, from widely available materials like atmospheric gases or coal, or from what were formerly waste products.

Since this trend is world wide, and since the knowledge on which it is based is available to all who make the effort to acquire it, it need not favor one nation over another. Yet independence of foreign materials means to some extent independence of foreign pressure — a step toward freedom or tyranny depending on whether the nation's mores are those of Sweden or Russia. Added power to create wealth means more butter for babies or more bombs for air raids, depending upon the aims of the economy in which that wealth is created.

Although the present clash in Europe is but a flurry in the centuries during which this trend has been gathering momentum, it would be (Concluded on page 130)



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## MALTHUS IN REVERSE

(Concluded from page 129)

adopting a comically cosmic point of view to dismiss the relation between them without comment. Great as have been the advances in the arts of producing foodstuffs and materials during the past twenty years, readers with pro-Ally sympathies will note that they have not been great enough, apparently, to offset the much greater needs which war imposes, particularly in regard to certain specific deficiencies of Germany, i.e., oil, iron ore, gold. In any case, brute matériel is but part of the requirement for victory in its industrial aspects; greater still is the need for skillful, willing man power. Germany, it is reported, is abandoning the use of alcohol as a motor fuel because alcohol is made from potatoes which are now too necessary as a food. More potatoes can't be raised because there isn't enough land or farm laborers; farm laborers are scarce because there aren't enough industrial workers either. It is an omen that, in spite of intensive efforts, the production of coal (the primary industrial material) in the old Reich in 1938 was less than 1 per cent greater than in 1937.

Until atomic energy makes recourse to coal and water power unnecessary, until aluminum from clay makes iron a laboratory curiosity (probably even then), God will remain on the side of the heavier battalions.

## LILLIPUTIAN LIBRARIES

(Continued from page 115)

such definition. That is to say, they meet the specifications as to curvature and other properties which should in theory result in the desired degree of definition. Nevertheless, if a score of lenses are made to the same set of specifications, one or two of them may well be found far superior to the rest in resolving power; hence a more exact system of specification of lens quality for microfilm purposes is desirable. This greater exactness would be of all-round benefit. For example, early work in microfilm employed ordinary inexpensive cinepositive film for both positive and negative stock. The limitations in the grain size and color sensitivity of this material led to the development of finer-grained panchromatic negative emulsions for use in the cameras and a finer-grained positive material for use in the printing machines. The manufacturers of film now claim, with some justification, that the next step lies in the perfection of lenses or the better application of those already available. In the projector, moreover, as in the camera, quality is determined largely by the ability of the lens to define an image over the required area. A secondary but important consideration is adequate illumination, on whose value agreement may be difficult. When cameras of high quality, panchromatic emulsions of fine grain, and projectors of good definition are available, much skill in their use is still necessary for the production of good microfilm.

The weakness as well as the strength of the case for microfilm lies in the space reduction it offers: If the reduction is great enough to be profitable, the image cannot be read without optical aid. The simplest type of reading machine — the ordinary hand magnifier —

is useful only when the reduction ratio is less than five. Even a fivefold reduction, however, realizes only a fraction of the space economy possible with microfilm. Attempts to construct low-power reading microscopes, both monocular and binocular, have not met with general acceptance. In almost exclusive use at present, therefore, are projection readers which have evolved from the familiar film-slide projector, the first evolutionary step being the placement of a mirror in the projection beam in such a way as to throw the image back over the projector, thus bringing the screen near the operator. If multiple reflections are to be avoided, the mirror must be front-silvered and therefore expensive, and the screen must be translucent in order that the image may be viewed from the side opposite that on which the light impinges. To permit the use of the machine in an illuminated room, the whole optical system is placed in a lighttight box with proper shields around the screen.

A translucent screen with a transmitted image has an advantage over a reflecting screen in that easy reading with the translucent screen requires an illumination level of only about one-fifth of that necessary to the reflecting screen. In order that the machine have reasonable size, the optical path has been reduced in length as much as possible, but a short path makes necessary a wide-angle projecting lens. The use of such a lens leads to difficulties with definition and flatness of field; so that if the image can be focused at all in the corners, it is likely to be out of focus at the center. Other difficulties have been encountered in the task of providing a screen which is free of "hot spots" where glare is excessive. Modern newspaper reading machines, of which three new models have recently been developed, overcome these difficulties rather successfully and probably realize very nearly the full legibility inherent in the microfilm itself. They are sold at prices which make them available to the more wealthy libraries but not to any very large number of scholars. Now the most important single obstacle to the widespread use of microfilm is the lack of an adequate reading machine which will be low enough in cost to enable any interested person to purchase one, and one reason that makes the design of such a machine so difficult is the present elementary state of microfilm standardization.

The factors which determine attainable reduction ratios are of great interest. If a reduction ratio of 10 is good (since it compresses by a factor of 100 the area of the material being copied), why would not a reduction ratio of 100 be even better (since it compresses the area by a factor of 10,000)? The first limitation lies in the camera lens. With the photographic objectives now available, reductions of about thirtyfold seem to be close to the limit. By use of a microscope objective and by restriction of the field to within a few degrees of the axis, however, reduction ratios approaching 100 have been attained. Given adequate optical equipment, therefore, the final limitation is set primarily by the grain size in the developed emulsion relative to the microletter size. Since the original type size is a factor in determining the microletter size, the reduction ratio is not significant unless the type size is also given. Present fine-grained microfilm emulsions in careful commercial production are limited to micro- (Continued on page 132)

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## LILLIPUTIAN LIBRARIES

*(Continued from page 130)*

letters about 40 centipoints high ( $\frac{40}{100}$  of  $\frac{1}{72}$  of an inch) or larger. These words set in 10-point type ( $\frac{10}{72}$  of an inch high) can be successfully reduced about twenty-sevenfold, whereas newsprint in seven-point type can be reduced only about seventeenfold. The limit can be pushed a little farther by the use of lithographer's film and very substantially farther by the wet-plate process employed by Dagron. Because of its complications, the wet-plate process is not practical for most microfilm work, and the demand for an emulsion of finer grain has not yet become so insistent as to lead the manufacturers of film to develop one. Dr. Sayce has given much consideration to this problem and may be able to produce an emulsion which will give practical reduction ratios substantially larger than are possible at present. When camera and film limitations permit higher reductions, reading machines employing more elaborate optical systems will be required and may be even more expensive than the finest ones available at present. The prospect of reducing the "Encyclopædia Britannica" to one or two sheets a foot square is, however, so enticing as to induce continued efforts. Even were such a reduction feasible, there are practical limitations—in particular, the problem of preserving the surface of the film against dirt and abrasion.

The problems of cataloguing, storage, and page selection have not yet become so serious as to occupy the primary attention of those working on microfilm. That cataloguing problems, however, will become decidedly serious is indicated by the fact that when 100-foot reels are used for book copying, several volumes must perforce be included in each reel, with a result equivalent to binding a number of volumes in the same covers. Difficulties arise when new books are to be inserted into the classification. The selection of a particular page in a particular volume on a particular reel, moreover, becomes tedious since the film must be observed at frequent intervals as it is passed through the reading machine. The selection can be expedited if the page numbers are printed in comparatively large type on the margin of the film. Stroboscopic devices have been proposed to permit reading these numbers in motion.



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The difficulties in the selection of specific material from film stored on reels have led to an increasing interest in the possibilities of placing microfilm images on sheets, which could be filed vertically, with one volume or less on each, depending on the size of the sheet. The library card's bibliographical information reduced to half size, yet still easily legible, could be placed at the top of the sheet. With present emulsions and techniques, a hundred ordinary book-size pages could be recorded on a three-inch by five-inch card, in addition to the bibliographical information in half size. A five-inch by seven-inch card would permit the placement of 400 pages on a single sheet, and an eight-inch by ten-inch sheet would take care of nearly any usual volume in any library. In contrast to the ease with which present microfilm equipment was adapted from the motion-picture field, machines for the manufacture of sheet microfilm require substantial departures from anything at present available. Cameras now in use, however, can place as many as forty-eight portraits on a five-inch by seven-inch sheet of film, and machinery has been developed for processing sheets of this sort in great numbers. The development of a camera to place microimages on sheets and of machinery for processing such sheets offers no serious technical difficulties.

The design of a reading machine for sheet microfilm involves a less radical departure from present practice than does the development of a camera, since the stepping mechanism for bringing the proper film area into register need not be precise or elaborate. If the newspaper field is assumed to be adequately and practically covered by the present roll-film technique, and if sheet microfilm is confined to the copying of book-size material, the projector can become small and simple. Adequate illumination can probably be obtained from a small incandescent lamp with a concen-

trated filament. The condensing and projecting lenses may be small and need not be of exceedingly high quality, because the angular field to be covered is limited. An adequate page-selecting mechanism for sheet microfilm is probably less expensive to build than a reel mechanism, and the selection of pages by deciles and units can be very rapid, even as the selection of volumes or parts of volumes from a card file is rapid. The frequently voiced goal of reducing a library to the size of its present card catalogue is not far from possible realization, as far as technique is concerned.

The question of the life of microfilm was one of the first to be raised when this medium began to be used for copying documents. The National Bureau of Standards has made extensive tests to answer the question. Film employing a cellulose nitrate base, such as is used extensively by the motion-picture industry, has been shown to have a life of between five and twenty years. This material is obviously unsuited for microfilm where permanence is required, and would, in addition, offer such a serious fire risk as to be intolerable in a library. A more permanent base employs cellulose acetate, though cellulose nitrate has in the past been added to give the film more desirable mechanical qualities. When great permanence is desired, it is essential that the nitrate content be negligible since the presence of any considerable fraction of cellulose nitrate shortens the life of the film. For a film base made of pure cellulose acetate, the Bureau of Standards tests indicate a life fully as great as that of good rag paper. Samples of rag paper made over a thousand years ago are still available in good condition. In order to realize this long life, certain temperature and humidity precautions are necessary. The ideal storage conditions are believed to be 50 degrees Fahrenheit and 50 per cent humidity, but because this low temper- (*Concluded on page 134*)

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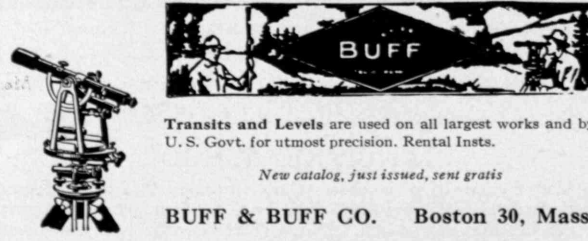
(Concluded from page 133)

ature is likely to lead to serious difficulties from water condensation whenever film is removed from storage for examination, conditions of 70 degrees Fahrenheit and 50 per cent humidity seem to be a good compromise.

The high cost of film has led to many attempts to produce a less expensive photographic medium. One such process, which has met with considerable success, uses diazo dyes. Paper can be impregnated with these dyes in their uncombined and colorless state, and later developed by exposure to ammonia vapor. One of the components of the dye can be destroyed by light, though a very much greater exposure is required than is needed in the silver photographic process, since most of the energy must be provided by the light itself rather than by the developer. In the diazo process a positive print is produced, because the dye is destroyed where the light strikes it. The cost of diazo-impregnated paper is not far above the cost of the paper itself. Any of the ordinary film bases can also be used in the diazo process, and since the grain size of the dyes is molecular, reduction ratios can be much larger than those possible at present with silver emulsions. The extremely low sensitivity of the material is its greatest handicap.

The problem of copyright has not yet become serious in the field of microfilm, for much of the material copied has been so old that the copyright has long since expired. For materials which still carry copyright obligations, book publishers and the chief operators in the microfilm field have agreed on two principles: First, that the microfilm copy shall not be sold for profit; second, that microfilm copy shall not be furnished in lieu of the purchase of the original book. Most copying agencies act merely as agents, transferring the copyright responsibility to the purchaser of the film.

The dream which has been voiced in the past — of providing everyone with a copy of all the best in literature, science, and art at negligible cost in a vest-pocket volume — seems still a long way from realization. The less ambitious project of supplying centers of learning with copies of all of the best from our past is well on its way. The possibility of publishing periodicals on film at a substantial reduction in cost without a corresponding reduction in usefulness seems not far over the horizon. That microfilm will ever completely replace books seems doubtful because of its inherent limitations, but that it will fill a valuable place as a supplementary medium is well established.



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# TECHNOLOGY MEN IN ACTION

CHECK LIST OF THE ACTIVITIES AND ACHIEVEMENTS OF M.I.T. ALUMNI AND OFFICERS

*Good!*

☐ ANDREW H. HEPBURN '03, EMIL LORCH '93, SUMNER M. SPAULDING '16, and PIERRE BLOUKE '19 were among the seventeen members of the American Institute of Architects to whom that institute this year awarded "the honor and responsibility of Fellow."

☐ RALPH L. FLETCHER '15, Vice-President and engineer of the Providence, R. I., Gas Company, recently received the Meritorious Service Medal of the American Gas Association in recognition of his work in maintaining the gas supply during the 1938 hurricane.

☐ M. RIGHTON SWICEGOOD '31 won fourth prize, and BISSELL ALDERMAN '35 and GILBERT E. HOFFMAN '37 jointly won fifth prize, in the Owens-Illinois Insulux Glass Block Competition Number 2, designing a store.

☐ HAROLD F. SNOW '39 received the Wiley Memorial Award from the Association of Official Agricultural Chemists. This award was made on the basis of Mr. Snow's undergraduate thesis and carries with it a \$300 cash prize.

## Elections and Appointments

☐ CHARLES G. HYDE '96, nominated local director of the American Society of Civil Engineers in San Francisco, Calif.

☐ FRANK F. COLCORD '98, chosen vice-chairman of the Engineering Foundation in New York City.

☐ WILLIAM D. B. MOTTER, JR., '05, elected assistant treasurer of the United Engineering Trustees, New York City.

☐ JAMES I. BANASH '06, elected member at large of the executive committee, engineering section, American Society of Safety Engineers.

☐ JOHN M. FRANK '07, appointed a trustee of Armour Institute of Technology.

☐ EDWARD L. MORELAND '07, elected a member of the corporation of Babson Institute.

☐ ARTHUR L. TOWNSEND '13, elected chairman of the sectional committee on the standardization of wire and sheet-metal gauges, organized under the American Standards Association and sponsored by the Society of Automotive Engineers and the American Society of Mechanical Engineers.

☐ LOUIS WEISBERG '15, elected vice-president of the Association of Consulting Chemists and Chemical Engineers.

☐ RAYMOND STEVENS '17, appointed director of a nation-wide survey of research in industry, sponsored by the National Research Council. Among other members, the council's advisory committee includes WILLIAM D. COOLIDGE '96, FRANK B. JEWETT '03, MARTIN H. EISENHART '07, JEROME C. HUNSAKER '12, MAURICE HOLLAND '16, and GEORGE R. HARRISON, Staff.

☐ D. C. JACKSON, JR., '21, selected dean of the college of engineering at the University of Notre Dame.

☐ DANIEL C. SAYRE '23, appointed director of statistics and information for the Civil Aeronautics Authority.

☐ ROBERT S. HARRIS '28, elected to the board of directors of the Academy of Physical Medicine.

☐ JOSEPH A. CUSHMAN, Former Staff, made corresponding member of the Academy of Natural Sciences of Philadelphia. In November we erroneously credited James A. Cushman '03 with this appointment. The latter Mr. Cushman has many calls to fame, but this is not one of them.

## Written

☐ By EARL S. BARDWELL '06 and CARL J. TRAUERMAN '07, contributions to *Seven Talks about Mines*, the Butte, Mont., Chamber of Commerce.

☐ By J. NEWELL STEPHENSON '09, "Canada's Pulp & Paper Industry," *Canadian Geographical Journal*, November.

☐ By JAMES A. TOBEY '15, "Baking Technology and National Nutrition," *Scientific Monthly*, November; "Legal Aspects of the Industrial Wastes Problem," *Industrial and Engineering Chemistry*, November.

☐ By PAUL H. RUTHERFORD '21, "The Rating and Application of Motors for Refrigeration and Air Conditioning," *Electrical Engineering*, October.

☐ By WILLIAM E. R. COVELL '23, "Flood Control," *Journal of Engineering Education*, November.

☐ By HERBERT L. BECKWITH '26 and LAWRENCE B. ANDERSON '30, "Exhaust Ducts Remove Odors from Lockers of New Field House," *Architectural Record*, November.

☐ By PARKER MORELL '28, "The Money Pit," *Saturday Evening Post*, October 14.

☐ By BEVERLY DUDLEY '35 and Keith Henney as editors, *Handbook of Photography*, Whittlesey House.

☐ By DAVID E. MORGENSTERN '39, "Partition of Poland's Oil Industry," *World Petroleum*, November.

☐ By FREDERICK G. KEYES, Staff, "Symposium on Cryogenic Research of the American Chemical Society," *Science*, October 13.

☐ By ANTOINE M. GAUDIN, Staff, *Principles of Mineral Dressing*, McGraw-Hill.

☐ By DUGALD C. JACKSON, Emeritus, "Trends in Engineering Education," *Journal of Engineering Education*, October.

☐ By HARLAN T. STETSON, Guest of the Institute, "The Present State of Solar Activity and Associated Phenomena," *Science*, November 24.

## Oddments

☐ ALFRED P. SLOAN, JR., '95, donated a \$1,000 student-loan fund to Drexel Institute of Technology.

☐ J. HOWARD PEW '03, asserted elements of monopoly eliminated from the oil industry thirty years ago.

☐ CLARK S. ROBINSON '09, stated no plants exist for explosives on fighting scale and probably won't before the United States declares war.

☐ FREDERIC H. SMYTH '14, founded, as one of four, the Society of the Catholic Commonwealth, an organization of priests and laymen within the Episcopal Church.

☐ VANNEVAR BUSH '16 with EDWIN L. ROSE '21, invented an "ingenious pump that can compress gases, create vacuums or transfer heat against normal direction of flow."

☐ SAMUEL V. CHAMBERLAIN '18, held an exhibition of etchings in Marblehead in November.

☐ FRANCES H. CLARK '22, "found through the science of metallurgy the romance and the serious business of living. For thirteen years she has headed the metallurgical laboratory of the Western Union Telegraph Company" in New York.

☐ HERBERT H. UHLIG '32, granted a patent for steel bath that creates a "singular luster and corrosion equivalent to that which characterizes precious metals."



¶ CHARLES S. SYMONDS '35, published in the Miami *Daily News* a sketch showing how the county causeway might be beautified.

¶ WILLIAM BARTON ROGERS, Founder, honored in dedication of *Catalogue of Topographic and Geologic Maps of Virginia*, recently published at the Dietz Press by Joseph K. Roberts and Robert O. Bloomer of the University of Virginia.

## DEATHS

\* Mentioned in class notes.

¶ GEORGE FABENS '79, November 17.  
 ¶ EPHRAIM HARRINGTON '79, July 20.  
 ¶ FRANCIS F. EMERY '81, August 9.  
 ¶ HENRY A. FRANCIS '83, November 11.\*

✓ ¶ FRED BARDWELL '84, October 24.  
 ¶ CHARLES MERRILL '86, October 14.  
 ¶ HOWARD G. HODGKINS '88, September 15.\*

¶ THEODORE LAIST '88, November 23.  
 ¶ ALFRED GRANGER '89, December 3.  
 ¶ ALBERT THOMAS '89, October 31.  
 ¶ SAMUEL STORROW '90, October 22.\*  
 ¶ WILL S. FULLER '91, November 8.  
 ¶ WILLIAM CHUTE '92, November 4.\*  
 ¶ HARRY A. HARWOOD '92, November 25.

¶ T. MORRIS BROWN '93, July 28.  
 ¶ WILLIAM CUTLER '93, October 25.  
 ¶ WALTER W. PATCH '93, August 9.  
 ¶ ALFRED L. DEJONGE '95, September 14.

¶ HUGH C. DENSON '95, April 17.  
 ¶ FREDERICK A. WOODS '95, November 5.

¶ EDWIN R. BRACKETT '96, November 7.\*

¶ JAMES T. BAKER '97, October 27.  
 ¶ HUGH BORLAND '97, February 15.  
 ¶ ELIZABETH F. GORDON '97, July 3.  
 ¶ EDWARD H. PRICHARD '97, November 5.

✓ ¶ WILLIAM O. SAWTELLE '97, September 23.

¶ NATHAN D. WHITMAN '00, September 29.\*

¶ WILLIAM I. WYMAN '00, September 12.\*

¶ WILLIAM SWEETSER '01, October 16.  
 ¶ SENECA BROWN '03, November 2.  
 ¶ WILLIAM TENNEY '04, August 26.\*  
 ¶ REYNOLD M. HARDING '05, October 25.

¶ GEORGE WALD '05, November 21.  
 ¶ WILFORD GRAY '06, November 23.\*  
 ¶ WALDO RICH '07, September 21.\*  
 ¶ ARTHUR REMICK '07, September 30.  
 ¶ HENRY W. SHALLING '08, November 11.

¶ CLIFFORD GAMMONS '09, July 5.\*

¶ JOSE CADENAS '13, November 14.\*

¶ JULIUS HOWLAND '14, November 3.

¶ JACOB STORY '17, September 30.

¶ HERBERT WALKER '35, October 14.

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TERM EXPIRES JUNE, 1943

HARRY P. CHARLESWORTH '05

DONALD G. ROBBINS '07

MARSHALL B. DALTON '15

TERM EXPIRES JUNE, 1944

PHILIP W. MOORE '01

CHARLES EDISON '13

HAROLD B. RICHMOND '14

#### National Nominating Committee

TERMS EXPIRE ON APRIL 14 OF YEAR INDICATED

TERM EXPIRES 1940

District 1: EDWARD L. MORELAND '07,

Chairman

District 2: REDFIELD PROCTOR '02

District 4: FREDERICK W. BARKER '12

District 5: ALFRED T. GLASSETT '20

TERM EXPIRES 1941

District 8: WILLIAM J. SHERRY '21

District 9: GEORGE M. GADSBY '09

District 10: ERNEST B. MACNAUGHTON '02

TERM EXPIRES 1942

District 3: ALFRED W. HOUGH '19

District 6: WALTER J. BEADLE '17

District 7: FRANKLIN FRICKER '25

The condensed directory above lists Alumni Association officers, term members whom Alumni elect to the Corporation of the Institute, and the National Nominating Committee of the Association, whose function is the presentation of candidates for these and other offices. Alumni who would offer suggestions, criticism, comment, on Association affairs or on the mutually helpful relationship existing between the Association and the Institute may wish to communicate with individuals here named. Their postal addresses will be supplied by The Review upon request, or letters addressed to them in care of The

Review will be forwarded promptly.

# NEWS FROM THE CLUBS AND CLASSES

## CLUB NOTES

### *Metals Convention*

During the Metals Convention which took place in Chicago, Ill., last fall, the M.I.T. men got together for a luncheon at the Palmer House on October 25. Because it is an interesting roster of Alumni in the metals field, we present the list of those who attended: Albert M. Talbot '34, International Nickel Company; Harry B. Pulsifer '03, American Steel and Wire Company; George C. Davis '18, North American Manufacturing Company; John R. Daesen '22, consulting metallurgist; C. Arnold Dutton '23, Buffalo Niagara Electric Corporation; Cyril S. Smith '26, American Brass Company; Isaac Perlmutter '34, Carnegie-Illinois Steel Corporation; John T. Norton '18, M.I.T.; Felix S. Klock '36, Hamilton Standard Propellers; John P. Walsted '29, Whitin Machine Company; Theodore D. Parsons '16, United Shoe Machinery Corporation; Frank D. O'Neil '25, Western Foundry Company; Thomas G. Harvey '28, University of Wisconsin; George W. Coleman '37, Parker Wire Goods Company; Donald W. Randolph '21, General Motors Corporation; Vincent E. Lysaght '24, Wilson Mechanical Instrument Company; John J. Ryan '35, Super Steels, Inc.; Oscar T. Marzke '32, American Steel and Wire Company; Clayton D. Grover '22, Whitehead Metal Products Company, Inc.; James B. Hess '38, J. H. Williams and Company; Willard M. Woll '26, Commonwealth Edison Company; David F. Bremner, Jr., '29, Bremner Brothers; Peter P. Alexander '33, Metal Hydrides, Inc.; and Morris Cohen '33, M.I.T.

Also present were Walter G. Bain, Jr., '36, Allis-Chalmers Manufacturing Company; Edwin D. Martin '22, Inland Steel Company; Edmund G. Farrand '21, United Conveyor Corporation; David R. Knox '27, Bundy Tubing Company; Alfred V. deForest '11, M.I.T.; Frances H. Clark '22, Western Union Telegraph Company; Lloyd E. Raymond '22, Singer Manufacturing Company; Walter Crafts '26, Union Carbide and Carbon Research Laboratories, Inc.; Tsun-Ming Wang '39, Tsing-Hua University; Victor O. Homerberg '21, M.I.T.; Sydney Nashner '34, Inland Steel Company; Leo P. Tarasov '37, General Electric Company; Edwin R. Richards '23, Carnegie-Illinois Steel Corporation; Charles W. Pendell '98, Electrical Engineering Equipment Company; George A. Chutter '21, Hevi Duty Electric Company; Donald E. Ackerman '39, American Brake Shoe and Foundry Company; and Pascal J. Morell '25, American Brass Company. — At least twelve of the papers presented at the convention had Technology authors.

### *M.I.T. Club of Akron*

Since May, when the Club had election of officers at its last dinner, there has been little activity. We say this advisedly, and look out of the corners of our eyes, for our M.I.T. Wives Club has carried the torch for us in no small manner; they even gave us a picnic during the summer, and we cannot take credit for this successful venture. Indeed, we have taken many a scalp for nonreciprocation, which we try to explain in an engineering way by saying that the day of the reciprocating prime mover is past: It's all turbines now. This explanation gets nowhere, and the chilly glances that we receive from our Frauen condense the steam in our pipes.

During May we had an excellent meeting with Alumni who were visiting the American Institute of Chemical Engineers' meeting in Akron. Forty-five old Course X men gathered at the luncheon table, and Professor Sherwood kindly consented to take us back to Tech, and to X particularly. It was a grand gathering. We have had some twenty additions to our rolls during the past five months, and these new men were introduced to the Club at our first fall meeting, held on December 4 at the University Club. We secured Professor Ray Stine to give us his lecture on "Historic Akron."

The officers for the coming year are: George A. Sackett '18, President; John T. Cox, Jr., '36, Secretary-Treasurer; Willard F. Bixby '35, James E. Connor '23, and John T. Cox, Jr., '36, Social Committee. We have resolved, as we have for every year in the memory of man, to entertain our ladies at least once. *Ora pro nobis*. — JOHN T. COX, JR., '36, Secretary, 76 Corson Avenue, Akron, Ohio.

### *M.I.T. Association of Buffalo*

Approximately forty men gathered at the University Club on Tuesday, October 31, for dinner and meeting of the Alumni from the Buffalo area. Following a short business meeting, a very interesting talk on crime was presented by John Hogan, acting agent of the Federal Bureau of Investigation for this district.

As these notes were being written a meeting was planned for Saturday, December 9. After a gathering for lunch, short talks were to be presented by executives of the Bethlehem Steel Company. Guides were to take the members on a tour of Bethlehem's Lackawanna plant. — JOHN D. RUMSEY '33, Secretary, Chevrolet Motor and Axle Plant, Station B, Buffalo, N. Y.

### *Dayton Technology Association*

The Association planned a dinner for November 16 to honor Vannevar Bush '16, former Vice-President of the Insti-

tute; Jerome C. Hunsaker '12, Head of the Departments of Mechanical Engineering and Aeronautical Engineering; Edward P. Warner '17, economic and technical adviser for the Civil Aeronautics Authority; and George W. Lewis, director of research for the National Advisory Committee for Aeronautics. We were very disappointed that of this group only Dr. Bush was able to attend; so he and Orville Wright, coinventor of the first airplane, were our primary attractions. Benjamin S. Kelsey '28, President of the Association, presided. — M. ELSA GARDNER '33, Secretary, United States Army Air Corps, Matériel Division, Wright Field, Dayton, Ohio.

### *Technology Club of Milwaukee*

Our first meeting this year, held on November 16, was very successful. Contrary to the custom of the last two or three years, no set program in the way of speakers or entertainment was planned. The result would seem to prove that Technology men need nothing more than their common memories and associations as an excuse for getting together. After dinner the officers had planned card games and similar forms of amusement, but this was found wholly unnecessary: Once reminiscences were begun, the evening proceeded to take care of itself. Judging from the anecdotes, the lighter side of college life provides the more lasting memories. Someone recalled the last and tragic "cane rush" by Harry H. Valiquet '03. Participants and onlookers at the more famous riots were also well represented.

Johann H. Meier '38, as the most recent arrival to Milwaukee from Cambridge, did much to make the meeting interesting. Dr. Meier was a member of the staff in Course I but seemed ably equipped to answer most questions regarding the recent activities of all Departments in the Institute. Attending were John B. Ballard '35, Warren A. Bjorn '34, Ralph E. Boeck '28, Stanley B. Bragdon '20, John F. H. Douglas '05, Frank K. Koerner '33, R. W. Ludt '23, Erling S. Mathiesen '29, Johann H. Meier '38, Robert M. Osborn '36, Leo Teplow '26, Harry H. Valiquet '03, Bruno H. Werra '32, Julius W. Werra '22, and Leland S. Woodruff '06. It has been decided to invite the members to bring their wives and feminine friends to our third meeting, tentatively set for early March. — ROBERT M. OSBORN '36, Secretary, 2840 West Highland Boulevard, Milwaukee, Wis.

### *Technology Club of Hartford*

The Club opened its 1939-1940 season on November 1 with forty-two members at a dinner meeting held at the Hartford City Club. The guest speaker was



Frederick G. Keyes, Professor in the Institute's Department of Chemistry, who talked on measuring temperatures which approach absolute zero.

Using lantern slides to supplement his talk, Professor Keyes first presented an historical background of early attempts to obtain extremely low temperatures by the liquefaction of gases and of methods of measurements then in use. Experiments conducted during the past twenty years in various parts of the world and the very recent developments in technique and apparatus devised at the Institute by the use of high-powered magnets were described in detail and contrasted with the apparatus and results of earlier research work.

Professor Keyes concluded his talk with a discussion of the difficulties encountered in obtaining accurate measurements at these low temperatures because of the changes produced in metals and other materials when subjected to such abnormal conditions. The multitude of questions asked by the club members during the open discussion held after the talk added considerably to the evening's entertainment and supplemented the extremely interesting talk.

The Club has thus begun what is believed to be another successful season. The previous year's policy of reduced dues is being continued again because of the unusually good results obtained during the 1938-1939 season. Active members have been asked to contact some of the inactive members to stimulate even greater interest among the local Alumni. With this new membership drive and with the interesting and well-balanced program planned for this season, all future meetings should be as well attended as was this first one. — THOMAS B. RHINES '32, *Secretary*, United Aircraft Corporation, 400 South Main Street, East Hartford, Conn. ERMANO GARAVENTA '35, *Assistant Secretary*, 50 Spring Street, Manchester, Conn.

### *Technology Club of Panama*

A meeting of the Club was held on Friday, October 20, at the Union Club in Panama City. At this meeting, we had not only the customary informal get-together of Tech men resident on the Isthmus of Panama but also the pleasure of having with us a former member of the Club, James Eder '34. He gave a very entertaining account of his own doings since he left us in 1936 and also brought news of other Tech men formerly with us. Meade Bolton '16, President of the Club, held his customary position as toastmaster.

The following were present: Meade Bolton '16, Eduardo Icaza A. '23, Jorje Barnett '30, Marvin Smith '26, Edmund Koperski '30, Homer Davis '30, Manuel Calderon '30, Constant Chase '34, Earl Murphy '34, James Eder '34, Wilder Mofatt '37, Frank Morales '39, Sterling Clark '39, Alan Schreiber '39, and Verne Osmundson '39. — CONSTANT W. CHASE, JR., '34, *Secretary*, Box 77, Balboa Heights, Canal Zone.

### *M.I.T. Club of Western Maine*

The fall meeting of the Club took place on Friday evening, November 10. After the customary salutations and greetings had been exchanged in the lobby of the Falmouth Hotel, Portland, twenty-three Tech men and their guests gathered for dinner. The Secretary was pleased to note new faces among the group and hopes to see them again at future meetings. The honors for having traveled the farthest must be divided among H. S. Weymouth '19 of Augusta and Frank H. Mason '02 and his son of Winthrop, both loyal supporters of Tech activities in this district. Nor must we forget to mention Howard H. Dole '09 of New York, a former member who happened to be in this city at the time.

Following the dinner, the usual parliamentary procedure of re-electing the present officers was quickly dispatched, and S. Lindsay Lord '28, dean of the Portland Junior Technical College, continued in the chair. His next duty was to introduce George R. Harrison, Professor of Physics at the Institute. Dr. Harrison gave us an intensely interesting talk on "Practical Aspects of AtomSmashing," and succeeded marvelously in bringing a subject way above our heads down to the level of the average layman. Those of you who have yet to hear Dr. Harrison or who have yet to read his immensely popular book, *Atoms in Action*, have in store a treat that is difficult to describe. — ALFRED E. B. HALL '15, *Secretary*, 19 Locke Street, Saco, Maine.

### *Technology Club of Rhode Island*

The Club held its first meeting of the season on October 19, with dinner at the University Club, Providence, followed by a joint meeting with the Providence Engineering Society at the building of the latter organization. Charlie Locke '96, Secretary of the Alumni Association, Ray Stevens '17, Vice-President of the Alumni Association, and Edward L. Moreland '07, Dean of Engineering, were our guests at dinner. Charlie and Ray both spoke briefly between courses.

After dinner the meeting adjourned to the auditorium of the Providence Engineering Society where Dean Moreland gave an interesting talk on his experiences with the Tennessee Valley Authority, particularly his appearance before the congressional committee which investigated the affairs of the T.V.A. The thirty-five club members and guests who were present at the dinner were joined by a substantially larger audience at the Engineering Society Building, all of whom were interested in the talk given by Dean Moreland. — DONALD G. ROBBINS '07, *Secretary*, 47 Charles Street, Providence, R.I.

### *Technology Club of the Connecticut Valley*

After a period of somnolence the Club held a meeting at the Hotel Worthy in Springfield on October 31. There was

heavy rain on the evening chosen for this dinner, but the number present, in spite of bad weather, and the interest shown led us to feel that this meeting was a success. Present were Robert C. Albro '07, Alden F. Butler '26, B. G. Constantine '26, Elmer F. DeTiere '39, Arthur F. Gould '38, Martin M. Kuban '37, George D. Manter '31, Paul Nims '38, Harry E. Osgood '00, Charles Parker '39, Philip Weatherill '39, John G. Wheale '38, and Max Winer '34. [The foregoing was an informal comment made by George Manter.]

The second meeting of the Club was held on Tuesday, November 21, following a dinner at the Hotel Charles in Springfield, forty-three Alumni attending. Charles E. Locke '96, Alumni Secretary, and O. B. Denison '11 of Worcester were guests of the Club. The meeting opened with the showing of two reels of Harold E. Edgerton's high-speed film, which were of interest to all. George Manter '31, as chairman, reviewed briefly the recent development of the Club and then called upon Professor Locke to outline the organization of the Alumni Association. O. B. Denison spoke of the manner in which the Worcester County Alumni Association of the M.I.T. operated.

The attendance at our meeting was considered satisfactory, as no list of local Alumni was available at the time. However, with an official list of over three hundred Alumni now at hand, the Club is looking toward a much greater attendance at the next meeting, which is to be held Wednesday, January 10. It was moved and seconded that the list of present officers and such additional men as may be needed be retained for the remainder of the temporary period until an annual election is held, at which time a permanent organization will be formed. Thus the following temporary officers will hold: President, George D. Manter '31; Vice-President, Harry E. Osgood '00; Secretary, John G. Wheale '38; and Treasurer, Max Winer '34.

It was suggested that the Club should have one active man or representative from each adjacent town, these men to form the executive committee. The members of this committee would assume the responsibility of seeing that all members in their territories are notified of forthcoming meetings. The following executive committee was elected: Springfield, Frank J. Lange '09; Longmeadow, B. G. Constantine '26; North Hampden, R. M. Jordan '34; Greenfield, William Murphy '39; Westfield, A. F. Butler '26; Holyoke, Otto C. Koehler '31; Chicopee, Lloyd M. Littlefield '26; Palmer, Alfred Ziegler '31; and Warren, Martin Kuban '38. — JOHN G. WHEALE '38, *Secretary*, Hartford Ordnance District, United States Army, 3640 Main Street, Springfield, Mass.

### *Washington Society of the M.I.T.*

The Society held its November meeting at the Lafayette Hotel on Friday, the seventeenth, at 5 P.M., with Ed Merrill '09

presiding. After introduction of new faces and guests by our Honorary Secretary, Henry D. Randall, Jr., '31, and by those bringing the guests, Proctor Dougherty '97 offered a few words explaining his attempts to get M.I.T. visitors from Cambridge to our meeting. We had learned from notices in the Washington papers that Walter R. MacCornack '03, Dean of the School of Architecture, Thomas P. Pitre, Associate Dean of Students, and James R. Killian, Jr., '26, Executive Assistant to President Compton, were in town, but all were unsuccessfully invited to attend. We regret very much this lost opportunity for further contact with Cambridge, but were delighted by the talk given by John Ely Burchard '23, who held forth upon current events, particularly the creation of a committee to study and create an alumni fund. Burchard gave complete details regarding the recent gym fund campaign, its outcome, the disposition of the funds, and the tentative future plans whereby the Alumni Association will conform with the most successful plans now in effect at various colleges and universities by replacing the present dues system with a more flexible fund solicitation. His talk was thoroughly enjoyed and appreciated by the Society. He is always very easy to listen to and seems filled with a never ending pep which some of us envy. His ready manner, free flow of ideas, and enthusiastic smile are a combination belonging to a winner. We hope he will come back soon and tell us something about low-cost housing plans in this country.

William M. Leiserson, the most recent addition to the membership of the National Labor Relations Board, was principal speaker. In introducing him, Ed Merrill stressed the importance and power of the N.L.R.B. and the seriousness of the problems confronting the country today. Dr. Leiserson began by thanking the membership for its part in sending young Leiserson to Tech. From the reports he received he is certain that his son is a born engineer and is making real progress. Leiserson described very fully and vividly the National Labor Relations Act and its administration, justifying his reasoning with concrete references to what is now history.

Briefly, his analysis was as follows: He wished that no National Labor Relations Act had been necessary for this country. Some countries have avoided similar enactments by making possible the accomplishment of the purposes of a labor relations act without specific legislation. Much of the criticism directed at the N.L.R.B. is unjustified. Like every other agency, it makes plenty of mistakes, but the greater part of the criticism is colored by personal interests. If it satisfies labor, it dissatisfies capital; and if its decision happens to affect the Congress of Industrial Organizations favorably, the American Federation of Labor is dissatisfied, and vice versa. Many court rulings of the past made the act imperative. In criticizing the action of labor today, it is often said that the Railway Mediation Board is

dealing with an utterly different group of workers and is cited as a much better administrative agency than the National Labor Relations Board. Leiserson quoted from the past to indicate that history was simply being re-enacted. The railway workers came first and got the benefits now granted other workers under the National Labor Relations Act, but in getting these rights plenty of difficulty was involved, even open warfare.

After his talk was supposedly ended Professor Leiserson showed a willingness to answer questions which were expressed so freely that he had considerable difficulty in getting down to dinner. The following M.I.T. men and guests enjoyed this meeting and the subsequent dinner served by the Lafayette: William M. Leiserson, guest speaker, John E. Burchard '23, visitor from the Institute, George W. Stone '89, William B. Poland '90, George E. Stratton '96, Proctor L. Dougherty '97, Martin Boyle '98, Walter L. Cook '03, Hewitt Crosby '03, Amasa M. Holcombe '04, John C. Damon '05, Edward D. Merrill '09, Charles P. Kerr '11, David P. Allen '11, Frank L. Ahern '14 and C. D. Monteith, guest, Alfred E. Hanson '14, Sarkis M. Bagdoyan '15, Edwin J. Grayson '16, Chester K. Allen '17, Louis J. Grayson '19, Merritt P. Smith '19, Perry R. Taylor '21, William K. MacMahon '22 with Robert W. Haylor '20 and R. C. Brehaut, guests, Edmund S. Pomykala '23, George H. Southard, 3d, '23, Paul J. Culhane '23, William V. Cash '24, George D. Fife '24, Harry B. Swett '25, Al F. Bird '30, Oliver G. Green '30, Patrick J. D. Harney '31, Henry D. Randall, Jr., '31, Charles E. Loucks '31, Mario V. Caputo '31, Alfred H. Munson '33, Utley W. Smith '35, Allen C. Stephens '36, and John Lowe, 3d, '37. — ALFRED E. HANSON '14, *Secretary*, 3424 Quebec Street, N.W., Washington, D.C. WILLIAM K. MACMAHON '22, *Review Secretary*, 818 25th Street, South, Arlington, Va.

### *Worcester County Alumni Association of the M.I.T.*

At the fall dinner meeting held at the Hotel Bancroft on November 22, Harold O. Berry '22 assumed office as president for the coming year. Other officers are O. B. Denison '11, Vice-President; John A. Swift '27, Secretary; Robert G. Clarke '35, Treasurer; Executive Committee: Frank C. Howard '17, professor at the Worcester Polytechnic Institute; Robert H. Brown '22 and Wallace S. Crowell '32, both of Fitchburg; Herbert L. Hayden '23 and Robert J. Proctor '28, both of Leominster; and Carl H. Wilson '34 of Southbridge.

H. B. Richmond '14, Treasurer of the General Radio Company and past President of the Institute's Alumni Association, told of his experiences and observations in Europe and the Near East during the past summer. Ralph T. Jope '28, Treasurer of the Alumni Association of the M.I.T. and Secretary of the Alumni Advisory Council on Athletics, told of

the improvements being made in athletic facilities with the \$429,000 obtained in the Alumni Fund Drive. A "stop me if you've heard this one" joke program arranged by Carl Wilson provided excellent entertainment. As an indication of the Club's interest in extracurricular activities, it was voted to send ten dollars toward the athletic contingency fund to the Treasurer of the Alumni Advisory Council on Athletics, with the regret that the amount could not be greater. However, if all Clubs and Classes would contribute similar amounts, the total would aid materially.

In addition to those already mentioned, others present were Erving G. Betts '18, Harold A. Brown '36, Gordon W. Browne '29, Waldo E. Buck '76, Percy J. Colvin '07, Fred Harold Daniels '11, Lewis Davis '12, Raymond Donway '31, Daniel P. Dyer, Jr., '32, Robert N. C. Hessel '27, William A. Hyde '04, Arthur W. Johnson '14, Robert D. Knight '31, Gregory M. Korjeff '34, Forrest F. Lange '23, Arthur J. Lariviere '35, Harry M. Latham '93, Oscar T. Marzke '32, Norman C. Nelson '30, Temple C. Patton '25, J. Weston Pratt '24, Albert J. Puschin '28, Webster K. Ramsey '22, Carleton A. Read '91, Harold L. Robinson '11, Louis E. Vaughan '02, Lewis S. Vose '16, John P. Vinti '27, Ernest P. Whitehead '20, and William A. Wilder '98, all of Worcester; Charles E. Cashman, Jr., '33, and Andrew B. Sherman '06 of Fitchburg; Philip L. Hatch '26 and Frank Riegel '25 of Leicester; W. Franklin Baxter, Jr., '34, and Alanson G. Bowen '33 of Southbridge; Robert S. Pride '29 and Rudolph F. Zecha '14 of Shrewsbury; and Ralph G. Mahony '18 of Sterling. — JOHN A. SWIFT, JR. '27, *Secretary*, 1156 Pleasant Street, Worcester, Mass.

## CLASS NOTES

### 1876

John F. Willard of San Gabriel, Calif., was in our Class for one year and was unable to continue on account of serious eye trouble. He wrote on September 12: "I will be eighty-seven years old on the twenty-fourth of this month. I sold my machinery business in Los Angeles and retired at the age of eighty. I hope to live until November so that I can vote against 'ham and eggs,' \$30 every Thursday, and 'Townsend, \$200 every month.' I am in good health and I think I'll make it!" — CHARLES T. MAIN, *Secretary*, 201 Devonshire Street, Boston, Mass.

### 1877

Our notes this month consist solely of a continuation of the interesting diary we received from Francis H. Bacon: "May 14: Day of discomfort; perhaps did too much. Went to Epigraphic Museum to take another rubbing of Apollo Pythian inscription for Mrs. Hill's book on Jane Harrison. Legs began to give out; hard to bend over. Stavro the old guardian dead. Dimitri, his successor, helps me with my stool; feel myself getting weaker; managed to reach the Averoff,



1877 Continued

where a fish mayonnaise and a glass of wine finished me (what a fool you are, F.H.B.!). Called a taxi and managed to reach my room, threw myself on my bed, and acknowledged I was down and out. Great anxiety of Marika and the little Greek maid. Couldn't go to doctor for vitamin; so he had to come to my room.

"May 15: Felt some better; delight of Marika and the little maid (who, I think, had visions of a funeral). Will take it easy today and not do anything. Letter from Theron explaining how I don't owe anything on the hose he bought and shipped to Chanak, as somebody — anonymous — had given him money to help prolong my stay in Greece! Explanation rather fishy, but what's the use. I am wax in his hands; everything goes with Uncle B. Invited to lunch at Stevens' [98] at 12:30 to see his Parthenon drawings; taxi to rue Tsakaloff. What a nice couple; evidently enough money to live comfortably and they have the memories of twenty years at the American Academy in Rome where Stevens was director. He is now busy making drawings of the Parthenon and the surrounding buildings. He is twenty years younger than myself! After a fine lunch, just my kind — talia-telli and chicken and potatoes, kolokethia salad — we went through his drawings of the Parthenon as seen from the entrance precinct, rock cuttings, statue bases, etc. What a fine time those Persians must have had up there on the Acropolis just before their defeat at Salamis, knocking over monuments and statues right and left and then, after Salamis, scooting back on the run for their bridge of boats. I had spoken to Stevens about a fragment of marble cornice I had sketched in 1879 up back of the Asklepeion near the theater. It had remnants of color, and I thought it might be similar to the cornice of the Zeus Stoa. Yesterday, Stevens went scouting about the base of the Acropolis and found that very cornice block still leaning against the rock as I described it. He made a full-sized section which I will add to my collection. He said all the coloring had vanished. Pity it hadn't been put in the museum.

"May 16: Athenase came in the car at 9:00 to go to Kerameikos and take rubbing of inscription on the little Doric column I measured in 1904. Measure base again and take photo with Athenase. The Germans had been excavating the early burial enclosures near the entrance but had found nothing. Road was blocked with earth and debris. Kübler, the director, came along, and I arranged to go with him to see the new Kerameikos Museum, not opened yet. Then to the Epigraphic for some more rubbings; then to the Averoff, where I had appointed a meeting for lunch with Miss Stone. She wanted to make other appointments but I said 'no': I couldn't be sure of any date. Taxi back to Plutarchos for siesta. Hill still at Corinth and no word from him. Had arranged at 4:00 p.m. to go with car to Helleniko College to hunt up Rosalind Reed's little summerhouse that she wished to sell. Take Despina and Antoni's little boy; Despina to help find the place.

After going up and down several side streets, we found it; a clean-looking little modern cement house set in a newly planted garden, all painfully new. The young man now the tenant had furnished it simply, and the woman caretaker said he liked the place but won't pay much for it. They asked \$700. Must set Frank Blackler to look out for it. Took some photos for Rosalind, but she is better off in California. Coming back along the shore by Phaleron; many new houses being built at New Smyrna, and one could see the houses creeping up the slope of Lycabettos making regular 'step streets' like Pera. Remembered the winter in Athens in 1883 when Professor Goodwin and Mrs. Goodwin started the American School. We were at tea at the Goodwins' and saw the grand procession of the funeral of Commandouros, and after it passed Fowler, Wheeler and all of us climbed to the top of Lycabettos and saw the artillery firing over the grave of Commandouros in the cemetery below. Back to Plutarchos, where I write this, and it's time to stop a too ready pen.

"May 17: 9:00 a.m. to Dr. Lorando for vitamin B; to Epigraphic to take rubbing of cornice ornament of Apollo Pythios altar; then to German Institute to meet Kübler to see new museum; not in. Everybody gone to the *Gesellschaft*. Wonder what is up. Athens is full of Nazis. To Agora Museum for lunch with the staff; afterward go up to see Piet de Jong's wonderful drawings of vases and terra cottas. He has an unique job. His room was lined with fearful caricatures of all the Agora crowd, which I didn't admire. Then he pulled out his plans and layout for the proposed new Agora Museum: very simple and fine. De Jong is a good architect and has had regular British training. Then Thompson takes me to see Travlos and his drawings of the Zeus Stoa. He is a beautiful draughtsman. Back to Plutarchos for siesta. At 5:00 p.m. Athenase comes with car to take me to Kephissia to try to find Blackler, whom I knew in Smyrna in 1881. Found the villa just beyond Kephissia center; an old white-haired servant came to the gate, said Blackler was ill in bed; his wife also. I sent in my card with the names of those who used to gather at the Griffith house in Boujah — Dudfield, Scott Mun Gavin, etc. Then the servant pointed out the William Blackler house near by, Frank's son, but on calling there everyone was away, so back to Plutarchos. But what a wonderful development of all that region! Magnificent asphalt boulevards with beautiful trees and gardens everywhere. When I was last here in 1931 it was all mud, and roads under construction.

"May 18: 9:00 a.m. to Dr. Lorando for vitamin B; can't see much improvement but the doctor is confident I will be better. To American Express to try to get Blackler on telephone. While telephoning, a gentleman leaning over the counter asks if this is Mr. Bacon — proves to be Professor S. A. G. Fuller of Southern California University of Los Angeles, just arrived from Stambul, where he had been with Damon Huntington and told to

look me up. So we adjourned to the cool café of the King George and had a good long talk. He had not been in Athens for twenty-six years and was all ready to renew impressions. Had spent several winters in Italy at Rome where he knew Stevens and was glad to know he was here in Athens. Was fifty-nine years old, unmarried; was with his cousin Horsefield of the Palestine Exploration who lives here; in fact, we talked a steady streak, almost too much for me. Invited him to lunch, but he was engaged. After siesta went up to American School to Verna Broneer. Oscar came in from his Acropolis dig for tea, and while we sat there Charley Morgan came in and said he would fix it up for me to stay at Excavation house at Corinth, which is near the museum and has the architectural things that interest me. Could go by early train next week after the Sunday rush, as I couldn't stand the journey by motor. I got quite excited over all this and in addition I had just received an old letter of mine dated January, 1881, from Boston describing the receptions and dinners at Mr. Norton's, of the start of the Assos Expedition, speeches and meeting notable people. All this brought so many crowding recollections my head began to swim and on going back to Plutarchos I threw myself on my bed, clothing and all, and didn't wake up until 2:00 a.m., when I didn't bathe or undress, just lay like a log till daylight.

"May 19: Came to my senses this morning and sent urgent note to Charley Morgan, calling off the trip to Corinth. I simply mustn't go. Plenty to do here with the Agora, the museums, and the new Kerameikos Museum. Went to National Museum to calm my soul with the new Kourios. What pride the sculptor must have taken in his work; the expression of the face shows it. The two bases sculptured in low relief formerly supporting statues, found in 1922 at the Kerameikos in the wall hastily built by Themistocles, was very human: wrestling, hockey, and a crowd watching; a dog being set on to fight a cat. To Agora Museum to lunch with the staff. Afterward show Travlos and de Jong my portfolio of full-sized Ionic capitals, etc. Both very appreciative. I think Travlos will keep on with the full-size idea, and I may hand over to him all my portfolios. Lucy Talcott tells me of the accident to Costo Adossides, who crashed in an airplane and was taken to a hospital. Telephone message from Miss Eccles just arrived at the British School, with letters from Chanak. Alice had written how much she liked her. She brought a message from Captain Jim Jones that if I had any money left, to leave it in Athens for him and he would pay me in Turkish in Chanak. Made me laugh, as my whole effort has been to spend every penny of my money here. Nearly all gone, too. A letter from Mr. Lee with all the Chanak news. He too admired Miss Eccles. I called for her in the car about 5:00 and we began to become acquainted. Edith is her name. A sympathetic little person going to Chios to carry on a dig begun by Wini-

1877 Continued

fred Lamb in some cave for prehistoric, alas! Returned to Alexander Boulevard to see the grand equestrian statue of King Constantine in the new park back of Lycabettos. The horse is magnificent. I suppose by some German sculptor. Go around by Zappeion Garden to see the marble thrones, three of them in a row. The one I photographed is published in the *Mélanges Holleaux*. Blackler telephoned he would call Friday morning.

"May 20: Came downstairs at 10:00 A.M. and there was a good-looking old gentleman who said he was Frank Blackler; so we just looked at each other, as we hadn't met since I used to visit the Griffiths in 1881. Frank married Mary, the second daughter. He brought in with him one of these glass transparency photos such as used to hang in a window; he said it had been resurrected by the old family servant. It was a photo of a group taken there by the front door at Boujaj, lion and all. Mr. and Mrs. Griffiths, John Griffiths, and the three girls — Harriet, Mary and Elfrida — all in white, and standing at the back were Mun Gavin and F.H.B. Frank said that when the old servant heard my name she went and found the old picture which no one else remembered. She was the one who interviewed me at the gate. I must take out a box of loukoums for the old girl. Frank was a bit shaky; perhaps I was in better shape. He had an appointment, and I went to the museum to try to find out what had become of the archaic Ionic capital from Sunion and the other marbles that used to be in the rear before the addition to the museum was begun. All now in storage, they said. To German Institute; meet Wedekind, the librarian; nice young chap engaged to an English girl in the British School. Kübler was busy at the Kerameikos. Karo just returned from Olympia. Go to Agora Museum for some measures of my painted Ionic capital. Lunch with the staff. Miss Crosby very agreeable; in fact, they all were most pleasant. Vanderpool, black-figured vase expert; Schweigert busy in the courtyard with the inscription squeezes. Storeroom after storeroom with racks full of busted pots and more coming, all catalogued. Shear at the head of all this. How will it all end? Makes me dizzy to think of it. To Plutarchos for siesta, then to British School to pick up Miss Eccles; sends down word she is in bed with a sore throat. Wrote letter to Rosalind Reed about Blacklers, and so on. About ten o'clock in the evening Stevens called, bringing his fine drawing of the Parthenon. Says he has arranged for a sedan chair to take me up on the Acropolis to the Annex Museum, where all those archaic Ionic capitals are lying about on the floor, where I could reach them. What a temptation, but I simply must not do this. The sight of all those treasures would make me go off my head. Wrote Thereon I plan to leave here Monday, June 6, arriving on the seventh; he will meet me and take me to Hissar.

"May 21: To American Express for letters and get money changed. In the bookstore next door meet young Michael Foot leaving next day for Italy; advised him to

call at American Academy in Rome and gave him a card to VanBuren. He was intending to bicycle up to the border; said his father was a British officer; advised him to get out of Italy by the middle of June as he feared there might be trouble. These British are simply scaring themselves to death over air-raid precautions, gas masks, and so on. I call it silly. Foot said he was staying with Reuter's agent here in Athens and will see Reuter in London. This brought up memories of W. L. Moloney, Reuter's agent who got away from Turkey with me in 1914, along with Captain Guy Pears. Go to National Museum, where I meet Karo, and we have a chat. He is a splendid one to explain things, he knows so much and is very kind-hearted. Make appointment to meet Monday morning at Piraeus Museum. Lunch at Averoff, and after siesta go to American School library, where I find Dorothy Thompson, Homer's wife, a delightful, sympathetic person; was at Bryn Mawr, knows Bettina Warburg and my dear Elizabeth Cope, so I feel that she belongs to the family. Says she called on me once in Boston in 1927, but I don't remember it. Her husband Homer is director of the Toronto Museum and professor in the university there; comes here summers as chief of the Agora staff; rather too much I should say. Down to Broneers for tea and Miss Eccles comes up from the British School; her throat better and she leaves for her dig tomorrow.

"Homer and Dorothy have three little girls: twins and a baby. Hope, one of the twins, came in from the garden where she was playing with Verna's Jon, two darling children. Back to Plutarchos and my supper tray, after which amused myself by writing out that story of my escape from Chanak in 1914 after the Goeben and Breslau had entered the straits and the story of the adventures of Moloney, Pears, and I in Mitylene, Athens, and so on. I sent this by Foot to Moloney in London, as I had seen in the London *Telegraph* that he was now general manager for Reuter. Hope it gets to the right Moloney." (To be continued) — BELVIN T. WILLISTON, *Secretary*, 3 Monmouth Street, Somerville, Mass.

## 1883

Henry A. Francis of the early years of our Class was an exceptionally active citizen of Pittsfield, Mass., full of good works. The Class saw little of him in recent years. A good excuse therefor is given in the New York *Times* of November 13, which lists his activities. His death occurred at Pittsfield on November 11 in his seventy-eighth year: "Pittsfield: Born here, Mr. Francis attended local schools, the Massachusetts Institute of Technology and the Worcester Textile School. He was associated with the Pontoosuc Woolen Company and was its president for many years.

"Mr. Francis was a leader in the industrial, civic and social life of Berkshire County. He also was president of the Berkshire Bird Sanctuary, a vice president of the Berkshire County Savings Bank, a

director of the Agricultural National Bank, and of the Berkshire Life Insurance Company. At his death Mr. Francis was also president of the Pleasant Valley Bird and Wild Flower Sanctuary at Lenox, which he had headed for many years; president of the Berkshire Museum and director and trustee of the Berkshire Athenaeum. Surviving are his widow, Agnes Bartlett Francis, daughter of the late General William F. Bartlett; a son, J. Dwight Francis; a brother, Robert Talcott Francis of New York, and three grandchildren, Eleanor Frost Francis, Elsie Lee Francis and Henry A. Francis 2d."

The Secretary spent the summer in Florida this year, his first summer there, although he and Mrs. Chase have been coming to the Sunshine State for some eighteen winters — one cause, we both think, of our exceptional good health. The Secretary proposes to write an eulogy on summer in Florida. To be sure one needs to be reasonably thin and to have at hand a lake or river into which to jump every few minutes during hottest days. A small motorboat (the Secretary built one this summer) and a house located to catch the southeast trade winds across the lake are also essential. It was big fun completely remodeling the house and grounds — bought in May; enclosing a rose garden (and azaleas) in front with a New England picket fence; planting flowering plants on all sides of the house and planning a high hedge to shut us off from the avenues on two sides. "Come on in," the water, the air, the winter temperature, the people, and the entertainments are fine. — HARVEY S. CHASE, *Secretary*, 431 Chase Avenue, Winter Park, Fla.

## 1887

Best news of the day is from Mon Sturges, who writes that he is feeling much better and gaining every day. Recently he was the recipient of a dinner given in his honor, which he thoroughly enjoyed. The life in Santa Monica, he says, is simpler and less expensive than in Chicago or the larger Eastern cities but more conducive to that peace of mind and contented spirit so essential to human happiness, especially at our stage of life.

Squash Cushing observed his golden wedding anniversary in November — also his birthday — but he doesn't look the age he credits himself with. "But," he says, "it's thirty-seven years since I paid a doctor's bill and just once in fifty years! Beat that?" Good for Squash! (Not so good, however, for the medical fraternity.) — It is a pleasure (as always) to hear from Mrs. Granger Whitney and to learn that Red Oaks Orchard at Williamsburg, Mich., was blessed with another wonderful crop of fine apples and that there is a good demand for them notwithstanding Michigan's large crop this year.

Arthur Nickels planned to leave Bath for Florida on December 4, and by the time these notes reach you, he will probably be basking in the warm sunshine of Winter Park. — Carter writes that he is looking for a warm spot for the winter



1887 Continued

but is not particular about running into mines and submarines in the process of exploration. We wish him luck. — Just a gentle reminder, in closing, that the Secretary is always pleased to hear from you and to pass along the good cheer to the others of the Class. — NATHANIEL T. VERY, *Secretary*, 15 Dearborn Street, Salem, Mass.

1888

Your Secretary has recently received a copy of the *Biographical Memoir of Edwin Oakes Jordan*, published by the National Academy of Sciences. The frontispiece, a fine likeness of Jordan, is followed by thirty pages covering all his accomplishments in bacteriology and public health. One interesting fact given is that at the age of six months his father, Captain Joshua Jordan, took command of the vessel *Pride of the Port* and sailed from Thomaston, Maine, with his wife and son, not returning for three years. This time was spent in voyages between Liverpool, Bombay, and other Asiatic ports. Upon the return, his father retired from the sea and went into the banking business in Thomaston. In 1881 the family moved to Auburndale, Mass., where Jordan was graduated from Newton High School; he entered Tech with us in 1884. He received his Ph.D. degree from Clark University in 1892, an honorary doctor of science degree from the University of Cincinnati in 1920, and was elected a member of the National Academy of Sciences in 1936. He died in Lewiston, Maine, in September, 1936. At the time of his death, he was the leading American authority in the fields of bacteriology, public health, and preventive medicine.

We have just been notified by his daughter Katharine, that Howard Gregory Hodgkins passed away on September 15 at Hines Memorial Hospital near Chicago. We quote from her letter: "He had been in the hospital almost five months. The immediate cause of his death was bronchopneumonia, due to his very weakened condition after having undergone two serious operations. He was past seventy-three years of age, and the odds were too much against him, although he put up a most courageous and determined fight to come back. His loss is keenly felt by all who knew him and appreciated his many fine qualities and talents." We can add nothing to this tribute by his daughter. We all remember the poem he sent to be read at our fiftieth reunion at Marblehead in '38; he was unable to attend because of illness.

Again, Prexie Webster won the gold medal at the fall flower show of the Massachusetts Horticultural Society in Horticultural Hall, Boston, with his gorgeous formal garden, filled with chrysanthemums, which occupied one entire end of the large exhibition hall. In the garden was a marble statue.

Ernest H. Baldwin, I, died at Springfield, Mo., on July 28. — Richard H. Vose has retired to his home, 301 Meachem Avenue, Park Ridge, Ill. — William Atkinson, architect, has also gone back to his boyhood home at Boxford, Mass. —

Your Secretary met Charlie Sabine on the train to Chestnut Hill this fall. He is the same big "Sergeant of Company A" he was in '84. The Secretary went to Quincy recently and inspected the Fore River Shipbuilding Company's plant under the guidance of G. W. Thomson '17, lieutenant commander, United States Navy. — BERTRAND R. T. COLLINS, *Secretary*, 16 Chauncy Street, Cambridge, Mass.

1890

Early in November a preliminary notice of our fiftieth anniversary went out, and replies are now coming in (November 22), two-thirds of them indicating that the writers hope to be present at the Hotel Marblehead. — Another man has "retired" in typical '90 fashion: Fred Swanton, after his long service in the United States Patent Office, sends out his card as registered patent agent at 1010 Vermont Avenue, N.W., Washington, D.C., and already "has enough work started." He reports good health and enjoying "the novelty of planning and carrying out the new line of activity."

Elizabeth Bickford, who retired after a life of teaching biology, writes that since then she has "just enjoyed life" at her hilltop home at Hermosa Beach, Calif., where "the view is superb far over the old Pacific on the west and towering mountains on the east." She appears, so far, likely to be the prize winner for coming the longest distance to the fiftieth anniversary.

James A. Carney, after forty-six years with the Chicago, Burlington and Quincy Railroad, is spreading his traveling around. He writes that this last summer he took the Alaska, Yukon River, Circle trip and wound up at the San Francisco and New York fairs. A year ago he went to the Arctic Ocean on the McKenzie River and last winter went to South America. He adds: "I have a good camera and a lot of fun with it. Aurora is an hour's ride west of Chicago and is a good place to live." We hope he will bring some of his pictures to the reunion.

The Secretary, happening to be in Newport, R.I., one afternoon last fall, spent a delightful hour with Frank Greenlaw and his wife, who were well and looking forward to the reunion. He also dropped in on Ernest H. Brownell, who has an attractive location where the waves beat almost against the foundation of the house, though fortunately the ground rises so abruptly that his loss in the '38 hurricane was small. Though retired, he still is called to Washington occasionally for consultation. He wants to know if anyone in '90 is a great-grandfather yet.

The address of Philip M. Hammett has been changed from Long Island City to Mandarin, Fla. Reunion notices sent to John B. Paine at 11 Beacon Street, Boston, and Harold B. Roberts, Seaside Heights, N.J., have been returned with statements that they are unknown at those addresses. Can anyone give us new addresses?

How little most of us know of the important work our classmates have done is illustrated in the case of Cyrus Babb,

whose memoir from the American Society of Civil Engineers was sent to the Secretary by Charles Sherman. From this we learn that: "When the long range planning of Mr. Newell bore fruit in 1902 as the Reclamation Act, Mr. Babb was transferred to the United States Reclamation Service as Project Engineer in charge of all designs for reservoirs, dams, outlet gates, canal sections and estimates of costs." Later he retired from government service, but in January, 1939, was called back again to take charge at Norfolk, Va., as senior hydraulic engineer, United States Corps of Engineers, of water power and flood control investigations.

The Charles Hayden Foundation is reported to have given approximately \$250,000 to colleges in Greater Boston and Greater New York during the past two years. Among these are M.I.T., Boston University, New York University, and Stevens Institute of Technology. In addition to this the foundation has financed the building of the Madison Square Boys' Club in New York, and a boys' club in Boston's South End.

Samuel Storow died in Pasadena on October 22. He was the son of James Jackson Storow. He came to Technology after being graduated from Harvard in the Class of '87, and studied both mechanical and civil engineering. He had already done some work in geology at Harvard. After graduation he went to the Northwest, where he remained until 1897 in general hydraulic and construction work, partly for the Union Pacific Railroad and partly on irrigation work for the United States Geological Survey. From there he went to Colorado, where he was connected with placer mining and other hydraulic work until 1900, when he went to Los Angeles and continued his headquarters there until a few years ago when he retired. In the early part of his work at Los Angeles he was connected with many large power construction operations on the Coast, including the Puget Sound Power Company, the Pacific Light and Power Company, and others. Later he devoted more of his time to work with water supplies and legal disputes concerning water rights, together with some mining work in California, Arizona, and Mexico. During the World War he did some work for the Federal Intelligence Department. — GEORGE A. PACKARD, *Secretary*, 50 Congress Street, Boston, Mass. HARRY M. GOODWIN, *Assistant Secretary*, Room 4-136, M.I.T., Cambridge, Mass.

1892

Your Secretaries are grieved to report the recent deaths of two esteemed and beloved members of our Class: Henry D. Shute and William Y. Chute. Henry Damon Shute, sixty-seven, died on July 15 at his home, 597 Northeast 55th Terrace, Miami, Fla., after an illness of two months. He lived in Miami two-and-a-half years, having formerly lived in Pittsburgh, Pa., until 1932 when he retired as vice-president in charge of commercial operations of the Westinghouse Electric and Manufacturing Company.

## 1892 Continued

Born October 1, 1871, in Somerville, Mass., he was educated in the public schools of Boston and was graduated from M.I.T. with a B.S. degree. After taking a postgraduate course at Polytechnic School in Dresden, Germany, in 1893, he returned to this country and became associated with Westinghouse. Shute was promoted to foreman of works in 1895; in 1897, designing engineer of the company; in 1900, chief of alternating-current division; in 1903, assistant to the vice-president; in 1910, acting vice-president; in 1914, treasurer; and in 1917, vice-president, the position he held until he retired.

He was a director of the Electric Railway and Equipment Company in Pittsburgh, George Cutler Company, Krantz Manufacturing Company, New England Westinghouse Company, Pittsburgh High Voltage Insulation Company, Pittsburgh Meter Company, Stevenson Company, Turtle Creek and Allegheny River Railroad Company, Westinghouse Lamp Company, and Standard Underground Cable Company. He was a member of the Pittsburgh Club, Pittsburgh Golf Club, Edgewood Golf Club, Oakmont Country Club, and University Club, all in Pittsburgh; Railway and University Club of New York; and Crescent Masonic Lodge 576 of Pittsburgh. He is survived by a cousin, Frank Shute of Miami; a niece, Mrs. Erle N. Flowers of Clarksburg, W. Va.; and a nephew, James M. Shute of Uxbridge, Mass.

William Y. Chute, seventy-six, a prominent Minneapolis real estate man and civic leader, died on November 4 at his home, "Hazelwood," in Wayzata, Minn. Son of Richard Chute, who went to the Northwest in 1844 to establish an Indian trading post, our classmate was born there September 13, 1863. He was educated at the University of Minnesota and the M.I.T., and was associated with the Chute Realty Company until his retirement a few years ago. Active in a large number of civic enterprises, he was one of the original guarantors of the Minneapolis Symphony Orchestra, a director of the Y.M.C.A., and past President of the Minneapolis Real Estate Board and the Minneapolis Society of Fine Arts. Chute was a member of the Minneapolis Club and the Minneapolis Automobile Club. Surviving are his wife; three daughters: Mary Grace Chute, Marchette Gaylord Chute, and Joy Chute; and a sister, Mrs. Grace C. Jacobs of Montclair, N.J. — JOHN W. HALL, *Secretary*, 8 Hillside Street, Roxbury, Mass. W. SPENCER HUTCHINSON, *Assistant Secretary*, 75 Federal Street, Boston, Mass.

## 1895

We must note with regret the death of Henry Stevens Dutton, IV, who died during January, 1939. Dutton was with the Class during 1894-1895, and after leaving Technology he practiced as a civil engineer, living in San Francisco, Calif.

John C. Sherman, VI, at present is a consultant on research lines for Pulp and Paper Mills, working on a retainer's fee. He is residing at 224 Park Street, Attleboro, Mass.

We note through the nation's press that Gerard Swope, President of the General Electric Company, has renounced his position in favor of a younger man. He will retain his interests in the company as a member of the board of directors. Jerry has had a commendable career as an engineer, philanthropist, and humanist, and we all bespeak our sincere wish that his influential career may continue through the "autumn period" of his life. — LUTHER K. YODER, *Secretary*, 69 Pleasant Street, Ayer, Mass. JOHN H. GARDINER, *Assistant Secretary*, Graybar Electric Company, 420 Lexington Avenue, New York, N.Y.

## 1896

The Secretary has received recently letters from Walter Leland in San Francisco and Charlie Hyde across the bay in Berkeley, but neither letter contained any information of personal nature. — Report has been made in a previous issue of *The Review* of the enterprise of our classmate Marion Lewis Chamberlain Lee in securing the wrought-iron fence which was around the Newbury Street entrance of the old Walker Building. The fate of this grille is now definitely settled, as it is being installed in the downstairs exhibition space off the north corridor on the first floor of the new Rogers Building in Cambridge. Here old graduates may view it and recall pleasant memories of Tech on Boylston Street.

On the last Sunday in October the Secretary undertook to call on Charlie Tucker in North Andover, but found only the dog Rover. The next day a post card arrived from Washington signed "Tucker and Wife," which reported that they were having a little pleasure trip on the Savannah Line steamer and were making a side trip to Washington. Later on Charlie reported that they were successful in locating Clarence Perley and in visiting the Library of Congress. Incidentally they were able to secure special permission to enter the galleries in the Capitol and see both the Senate and the House of Representatives in action. Not to be deterred, the Secretary called again on November 12, and on that day had the realization of the long-anticipated pleasure of dining with Charlie Tucker and Mrs. Tucker at their home on Mill Road, and of inspecting Charlie's apple and peach orchards, his dairy herd, and his farming operations. The Tucker homestead dates back at least two centuries, and although Charlie has installed modern improvements, the old fireplaces and other features of olden times, including the hewn beams characteristically notched, are worth studying. The whole establishment radiates hospitality from Charlie and Mrs. Tucker down through the dog Rover and the family cats. Mention should be made also of the old cider press, dating back two generations, from which the steady trickle of apple juice probably would have amounted to enough to fill a fair-sized reservoir. The sad part is that Charlie no longer has the cider press in action, but disposes of his apples, juice and all.

The time of departure came all too soon for the Secretary. He left with a perfect sense of well-being, with a well-filled basket of rosy-red Mackintosh apples, and with a vivid memory of the wonderful orange pudding prepared by Mrs. Tucker. This pudding had the exact taste of the orange puddings which the Secretary enjoyed in his boyhood days at home. It seems a rare occasion for us fellows over sixty years of age to have food which brings back boyhood memories. One thrill which Technology men will experience in visiting Charlie's residence will be that of treading again on the Rogers' step, over which everyone will pass in the future in entering his house. The proposed bronze tablet is not yet installed but will be placed very shortly. Apparently Charlie had been waiting to get the Secretary's opinion on the proper location, and this matter was settled on November 12, by unanimous agreement of Mrs. Tucker, Charlie, and the Secretary.

It was at the Tuckers that the Secretary learned of the death of our classmate E. Raymond Brackett, which occurred on November 7 at the Baker Memorial Hospital in Boston. The funeral services were held in Newton Cemetery Chapel on November 9. Tucker and his wife attended these services and there found also Jim Driscoll and George Hatch.

Edwin Raymond Brackett, or Skip Brackett as he was known to all of us, was graduated in Course V. As a student he was active in the Yacht Club and was lieutenant of Company D of the freshman cadets. He was born in Newton, Mass., in December, 1874, the son of Albert and Mary A. Stone Brackett. He married Evelyn Mandell in November, 1906, in Newton, Mass. A daughter, Dorothy Orrienne, was born in January, 1909. For three years after graduation Skip was a chemist in the Russell Paper Mills. For the next four years he was chemist for the State Board of Health, and for the next two years chemist for the New York Glucose Company. In 1904 he went into the coal business in Newton as the son in the firm of Brackett and Son. This continued until 1913, when he became president, and the name was changed to Brackett Coal Company. In 1925 he retired and made his home in Hingham, Mass. He was a member of the New England Coal Dealers Association and the Hartford Yacht Club. Skip was a most genial, jolly soul, a fairly regular attendant at our reunions, and a person who added life to any gathering.

Belated word has been received through the Alumni Office of the death of our classmate Henry D. Barto in March, 1938. He was with us through our freshman year, and after leaving Technology he had never kept up any close relations with the institution or with the Class. The records show that he was born on November 11, 1873, in Trumansburg, N.Y., the son of Charles P. and Ella S. Barto. He was married in 1905 in Kansas City, Mo., to Miss Katharine Lewis. His address for many years had been Pompey, N.Y., and his business that of



1896 Continued

advertising. His widow survives him and is living in Syracuse. The Secretary has written to her and hopes to obtain details.

A rumor has reached Cambridge indirectly that the M. L. Fullers are off again, but according to the report they have trekked only as far as Florida, so perhaps they did not feel that this was enough of a trip for them to tell us about and give opportunity for notation in the class news. — CHARLES E. LOCKE, *Secretary*, Room 8-219, M.I.T., Cambridge, Mass. JOHN A. ROCKWELL, *Assistant Secretary*, 24 Garden Street, Cambridge, Mass.

## 1898

Looking over the November 18 Boston *Herald* our eye caught a familiar face and, sure enough, it was Penny himself, viz., our former representative, Elliott R. Barker, sitting at the head table beside Governor Saltonstall at the annual supper of the First Baptist Church of Arlington.

Roger Babson is a militant reformer in local matters. A year ago he attacked the smug complacency which, according to him, had crept into the organization of the Congregational Church. This year on November 17 he spoke at the annual convention of the New England Association of School Superintendents. According to the Boston *Herald*, November 18 he 'laid responsibility for 7,000,000 of the country's 10,000,000 unemployed at the door of the school committees and charged that schools which he termed little more than 'educational factories' were turning out 'worthless goods that business men can no longer afford to accept.'

"Among ills resulting from political interference . . . are lowering standards 'to give parents what they want . . . a diploma'; presentation of utter bunk in the study of 'inane social sciences'; the doctrine of play instead of work; spend instead of save; 'professionalism' in athletics, and failure to be practical or give moral counsel.

"In an interview last night [Mr.] Downey [Massachusetts commissioner of education] said: 'Mr. Babson's address contains some points of significance — his emphasis on discipline in the school program, his insistence on training for practical life pursuits, further his emphasis on the need of high civic values in the school curriculum. However, when he indicts all school officials, superintendents and teachers, as he did in parts of his address, he insults the intelligence of every thoughtful citizen.'"

Paul Johnson took his yacht up to San Francisco Bay, the latter part of May. The Class Secretary went to Stockton, Calif., for the wedding of his son on June 5; so Paul and his family sailed up the river 100 miles to Stockton to attend the wedding and then took the Blanchards aboard, sailed back to Treasure Island, where he moored the yacht right beside the San Francisco Fair. The Blanchards had a gorgeous experience for five days. The yacht remained in San Francisco Bay several weeks longer while Paul entertained other parties of friends.

A questionnaire sent out last summer by the Alumni Office brought back response from Frank N. Phillips, a classmate we have not heard from for a very long time — in fact, as far as we remember, not since graduation. He admits that he is president of the Washburn Wire Company, vice-president of the Auto Mutual Insurance Company of America, vice-president of the Factory Mutual Liability Insurance Company of America, director of Rumford Chemical Works and of the National Bank of Commerce and Trust Company.

M. deK. Thompson spent last July with his daughter near Tucson, Ariz. His son-in-law, Grenville Goodwin, is an anthropologist at the University of Arizona. He has another son-in-law, David Riesman, Jr., who is professor of law at the University of Buffalo. Since he himself is professor of electrochemistry at Tech, it makes a completely academic family.

Robert Starr Allyn retired as commanding officer of the 607th Coast Artillery Regiment, with headquarters in New York, on his birthday, November 27. The officers and many of his other friends honored him at a dinner at Fraunces' Tavern in New York, where General Washington bade farewell to his officers at the end of the Revolutionary War. Many of his military associates spoke of Colonel Allyn's distinguished career which brought him service at the front in France, where his life was saved by a fellow officer who pulled him away from his room just before it was demolished by an enemy shell. Others praised his services as an official of the city of New York, where he is now deputy commissioner of the Department of Docks. The guest of honor was presented with a plaque and memory book by the officers of the regiment. Azel Ames '95, William H. King '94, and Lester D. Gardner represented M.I.T. at the ceremony. — ARTHUR A. BLANCHARD, *Secretary*, Room 4-160, M.I.T., Cambridge, Mass.

## 1899

These notes should have appeared in the November issue but time pressed, the exigencies of business intervened, and the hills of New Hampshire beckoned to me as to others of the Class of 1899. January is a propitious month to make good resolves and initiate new undertakings. Of resolves I shall speak hereafter; the present undertaking is to relate the story of the fortieth reunion at the Essex County Club, Manchester, Mass., June 3 and 4.

By strange coincidence there were forty guests present at this our fortieth reunion. This is a goodly number, and thanks again are due the committee which did such excellent work. Arthur L. Hamilton was chairman, ably assisted by Arthur Brown, Miles Sherrill, and Timmie Kinsman. The list of those who attended follows: T. C. O'Hearn, Miles Sherrill, William A. Kingman, H. S. Mork, W. A. Kinsman, C. M. Swan, A. H. Brown, F. F. Fowle, C. G. Barry, W. S. Newell, Haven Sawyer, H. C. Eaton, G. H. Priest, F. R. Swift, J. A. Patch, T. P. Robinson, A. L. Hamilton, W.

## THE TECHNOLOGY REVIEW

Palmer, F. B. Stearns, E. Walker, H. J. Skinner, W. M. Corse, D. C. Churchill, B. R. Rickards, A. F. Nathan, C. A. Watrous, J. Stone, Jr., F. C. Waddell, E. A. Packard, M. S. Richmond, E. F. Samuels, L. C. Soule, C. W. Brown, L. Addicks, E. E. Pierce, P. W. Witherell, and G. H. Perkins.

Amusements were uncharted and unplanned. There was golf for those who wished golf; talk for those who wished talk, and most of the men did. Groups gathered and dispersed and gathered again as each guest tried to see and chat with each and every one of the other thirty-nine men present. Needless to say, stories were swapped and experiences exchanged that would have made enticing copy, except for the fact that there was no one to record the gems. The occupations and interests of the men foregathered touched national and international policies and trade, national defense, including ships — possibly shoes and sealing wax, as well as cabbages and kings, à la Alice in Wonderland. Frank Fowle forwarded to me some weeks ago a set of photographs taken at the reunion. They were excellent. The high point of the two-day session was the dinner on Saturday night, the third, where there was much mirth and roundelay and each Course vied with the other in checking up on the graduates in attendance.

From hither and yon I have gathered a few bits of news. Stark Newell's daughter Mary was married on August 19 in the Central Congregational Church, Bath, Maine, to Eastham Guild, Jr., of Babson Park, Mass. At Rye Beach, N.H., on August 8, Mary Drake Brown, daughter of Carroll Brown, was married to Jack Leonard Spicer. They will live in Arlington, Va.

Frederick Waddell has taken another trip about which he has not yet written me the details. Last year he motored with Mrs. Waddell through the historic southeastern part of the United States, traveling as far south as Atlanta, Ga. This year he went out through Kentucky and Tennessee, crossed the Mississippi at Memphis, thence north to St. Louis and Springfield, Ill. There, I assume, he visited New Salem, and if he didn't, he should have done so. There one may dismount at a modern parking place, follow a path around a hedge of Osage oranges, and enter the historic past. New Salem, the home town of Abraham Lincoln from 1831 to 1837 is being reconstructed, and one can walk down the village street that is lined with residences, shops, apothecary and blacksmith, and office residences of the English and French doctors. In the gardens of the two physicians one can pick mint and catnip and other simple remedies of the time. Into that sequestered area, time and change have not obtruded.

Each classmate please make a New Year's resolve to send a bit of news for this column. — W. MALCOLM CORSE, *Secretary*, 1901 Wyoming Avenue, N.W., Washington, D.C. ARTHUR H. BROWN, *Assistant Secretary*, 53 State Street, Boston, Mass.

## 1900

The facilities of this station have been engaged for the next few seconds by interests closely associated with the enrollment committee of the 1940 reunion. Its chairman, one Allen, will endeavor to interest, coerce, and prevail upon you to give a favorable answer to a letter he is to send you shortly, fully describing the program next June. Give heed to his effort.

November 15 marked another one of the enjoyable get-togethers which the local members of this Class seem to have — this time at the University Club. After a half hour devoted to recalling old times, Joe Draper started the festivities at the piano with the "Stein Song," and the boys all joined in, led by Percy Ziegler, who by the way was the first one to sing this song in public. One song led to another, and Joe had to be dragged away for soup. Five-minute talks brought out recent engineering successes by Comey; Brigham's difficulty in finding time to do the things he has planned since his retirement; Everett's interesting description of snow removal in connection with his job as New Hampshire commissioner of roads; Crowell's complaint that the bass are getting too heavy for one man to pull out of the ocean; Charlie Smith's story of the recent divorce case now going on between the Old Colony and the New Haven; Newhall's story of his recent real estate successes; and a very enlightening and instructive discourse by George Russell on his connection with the Coast Guard. Besides those already mentioned, there were present: Allen, Leary, Lawley, Neall, Walworth, Stearns, Davis, Burns, Jackson, Richardson, Bugbee, Fitch, Ingalls, Wedlock, and the Secretary. Regrets were received from McCrudden (away on a vacation), Conant, Howe, Patch (speaking engagement), Gibbs, Thurber, Ripley, Ike Osgood, and Westcoat. When the boys come from such distances as New Haven, Conn., West Dennis, Mass., and Concord, N.H., there must be a real urge.

Several good suggestions for a more complete roundup of the members of the Class to go to the fortieth reunion at East Bay Lodge next June were brought out in the general discussion following the class meeting; if any ideas come to the readers, they will be welcomed by the committee. Send them in.

The Boston *Herald* of October 26, in the account of the 137th annual session of the Massachusetts Baptist Convention held at Tremont Temple, carried a picture of James A. Patch, retiring President and newly elected director. Jim looked smiling and happy. — The same paper on October 7 carried the following story: "Mrs. Eleanor Cushman Cummings of West Newton, daughter of Mr. and Mrs. L. Southard Cushman, was married . . . to Mr. Miles E. Brooks of Putnam Street, West Newton, son of Mr. and Mrs. Thomas T. Brooks, in the Second Church of Newton, West Newton. Dr. Boynton Merrill performed the ceremony, and a reception was held at the home of Mr. and Mrs. Walter L. MacLachlan on

Hunter Street, West Newton. Ushering at the ceremony were Mr. Walter L. MacLachlan and Mr. Albert J. Brooks of West Newton, nephew of the bridegroom. Mr. Brooks and his bride will motor through New England on their wedding trip and on their return they will make their home on Hunter Street, West Newton. The bride attended Queens College and Radcliffe College, and Mr. Brooks attended Chauncy Hall and the Massachusetts Institute of Technology."

We regret to report the death of Whitman, news of which we received from a copy of the *Engineering News-Record* of October 12 forwarded by the Alumni Office: "Nathan D. Whitman, chief engineer of the American Concrete & Steel Pipe Co., Los Angeles, died September 9 at Pasadena, Calif., at the age of 61. He was a graduate of M.I.T. and had been affiliated with the American Concrete Co. for 25 years. Before joining the company for which he last worked, he was engineer in charge of construction of a sewage disposal plant and pumping station and intercepting sewers in Jackson, Michigan." While at the Institute, Whitman was quarterback of the freshman football team.

We are indebted to the Alumni Office for the following item, which was copied from the *Journal* of the Patent Office Society, October issue: "Mr. William I. Wyman, Principal Examiner of Division 33, died suddenly on the afternoon of September 12, 1939, from a heart attack. He was sixty-eight years old, and is survived by a widow, Bessie Ney Wyman. Mr. Wyman was born in Boston, where he received his general and technical education, graduating from the Mass. Institute of Technology in 1900 with the degree of Bachelor of Science in Naval Architecture and Marine Engineering. In Washington he received the degrees of Bachelor of Law from the National University Law School and Master of Patent Law from George Washington University. He entered the Patent Office as a fourth assistant examiner in September 1903. After various promotions, serving in Divisions 34, 1, 6 and 3, he was made Chief Clerk on August 7, 1919. While Chief Clerk of the Patent Office, Mr. Wyman introduced many reforms in the storing and handling of its records and publications and in fact modernized this branch of the activities of the Patent Office. The Circular of Information Concerning Patents was due mainly to his efforts. The occasion of his retirement from the duties of Chief Clerk to assume those of a Principal Examiner was marked by mutual expressions of good-will with the clerical divisions and officials of the Office. The Commissioner of Patents and Assistant Commissioners presented Mr. Wyman with a large framed photograph of the Patent Office Building, with an appreciative inscription. On February 1, 1923, Mr. Wyman was appointed Principal Examiner of Division 33, where he was in charge of patent applications relating to building structures, bridges, highway engineering. . . . This position he held until the day of his death.

"Mr. Wyman was connected with the *Journal* from its beginning, having been a member of the editorial board for exactly twenty-one years, and the most frequent contributor to its pages. From September 1921 to February 1923, and for February 1926, he was editor-in-chief. The first article in the first number of the *Journal* after some introductory notes, was his 'Thomas Jefferson and the Patent System.' This was the first of a series of articles on Patent Office History, which are noteworthy for their grasp of fundamentals and vivid characterization of personalities. Numerous other articles and notes by Mr. Wyman discussed Patent Office administration, reform of the patent laws, legal subjects, invention and inventions, not to mention the numerous editorial notes, biographical notes and book reviews. His writings possessed a literary quality not attained by other writers in the field. His style was clear and interesting even when dealing with subjects normally dry and abstruse. He also contributed to the *Scientific American* and other periodicals. In 1913 the *Scientific American* conducted an international competition on the subject, 'What Are The Ten Greatest Inventions of Our Time, and Why?' Mr. Wyman wrote the essay which was awarded first prize. It was later reprinted. In the *Journal* staff, Mr. Wyman made numerous friends; with his youthful spirit he served as an inspiration to many a younger man. Everyone who knew him will miss his presence in the Patent Office."

Faithful Tom Perry takes out time to send in this nice letter: "Perhaps a little family news will furnish some more wading for your class column in The Review. We have acquired a new son (at our age!) in the person of Frank F. Ferguson of Portland, Maine (Yale and Yale Medicine), who married our daughter Frances Goodenough on October 28. Dr. Ferguson is a fellow on the Mayo Foundation at Rochester, Minn., and the couple will reside there. Our two sons, Bretton '33 and Thomas D., Jr., were among the ushers. The engagement of Thomas D., Jr., has recently been announced, and he is to be married in the near future to a Moorestown, N.J., young lady; so our family roster is growing apace. The Perry family emigrated in 1936 to Moorestown, where I am working with the Resinous Products and Chemical Company, Inc., of Philadelphia in developing new adhesives for the plywood industry, traveling much of the time in the Carolinas and adjoining states. Bretton, my son, is located with the American Can Company at Atlanta, Ga., and we can sometimes stage a miniature Perry-Tech reunion if one of my trips permits an approach to Atlanta. Recently I was in Boston for a few days, where I had a paper before the wood industry division of the American Society of Mechanical Engineers. I spent a day at the Institute, giving a talk to the students of the Building Construction and Architectural Courses. Sorry I did not have a chance to look you up, but these technical meetings are very demanding on one's time. How-



1900 *Continued*

ever, I did get a chance to spend an evening with Percy Ziegler at his new home in Wellesley Hills. . . . Whether the family purse strings can be stretched enough to make the forty-year reunion on the Cape next summer, remains to be determined. But we will do our best to join the gang there."

The ever thoughtful Allen sends in the following news: "I realize that an automobile trip to the Pacific Coast is no novelty these days, but you asked for news, so I'll outline the one that my wife and I took last summer. We wished to visit relatives in Seattle, and as we had plenty of time and I had wanted to do this for a long while, we decided to go over the road. We found it a delightful way to travel. The roads were fine everywhere; accommodations were comfortable and reasonable; we didn't miss any part of the scenery by night travel, and we could make side trips whenever we were so inclined. We went out by way of Pennsylvania (as we wished to visit our daughter and granddaughter in State College) and Chicago, then over the Lincoln Highway to Salt Lake City and up to Oregon, following the Columbia River Highway to Portland and then to Seattle. We did not try to make it hurriedly, but took our time, visiting along the way as we pleased. In all we took eleven days for the trip, including a day's visit in State College, a day in Chicago, and a half day in Salt Lake City. The longest day's run was 489 miles, and we never traveled after dark. West of the Mississippi we found plenty of excellent overnight camps. We could always count on finding one in a short time after we decided that we had had a long enough day. The camps generally consist of a one-room cabin with private shower bath and often a covered shelter for the car alongside. Each one featured an inner-coil mattress — it doesn't seem possible that so many of these have been made. We thoroughly enjoyed the scenery along the way. The Columbia River gorge is particularly fine. After reaching Seattle we decided that we ought to visit San Francisco and the Fair. So we took this trip, adding another 2,500 miles to the speedometer record. With our own car we were able to see San Francisco as never before. We went south by way of the Oregon Coast Highway, which to my way of thinking is about the most wonderfully scenic highway I have ever seen. After visiting the Fair we went over to Yosemite National Park and then back to Seattle by way of Crater Lake National Park. I had never seen either of these parks; they both came up to the most flattering descriptions ever written about them. While in Seattle we took many trips about the beautiful Puget Sound region, including Vancouver, Grand Coulee, Hood Canal, and Mount Rainier. In fact, we made three visits to Rainier, seeing it from both sides and making several climbs of a couple of thousand feet to reach vantage points. This mountain peak, together with its glaciers and surroundings, makes a most marvelous spot. The first part of our return trip was a sort of sight-seeing

tour. We headed for Glacier National Park, then went to Yellowstone Park, the Black Hills, and the Bad Lands. With these detours the return trip also took eleven days. The distance each way was about 3,800 miles. Including the trip to California and all our side trips, we covered altogether over 12,000 miles in a little over two months."

Many thanks to the Cranberry King of the Cape for the box of luscious berries just ushered into the sanctum by the express man. What an asset it is to know some of the producers. Does any gentle reader raise apples or potatoes? — C. BURTON COTTING, *Secretary*, 111 Devonshire Street, Boston, Mass.

## 1901

Many of those who returned the class data sheets following the receipt of the annual class letter which was sent out on September 26 unfortunately made so few comments that not much can be included in these notes except statements of present business connections and locations. Fred Freeman continues in the rug and carpet manufacturing business and as president of the New England Guild at Portland, Maine. Alex Taylor continues as president of the Delaware School Auxiliary Association and the Delaware School Foundation at Wilmington, Del. Howard Wood of Rockville, Conn., continues to be very busy with local interests although retired from business. Russell Putnam, who is research engineer for the Waterbury Clock Company at Waterbury, Conn., states that while his concern formerly made Ingersoll watches which "made the dollar famous," they now make anything up to five dollars famous. Russell also states that Ed Davis and he are the only representatives of '01 in the Waterbury section and that his son, George Putnam, M.S. '36, is now employed in the department of engineering design of The Texas Company, New York City.

Fred Clapp, our peripatetic geologist of 50 Church Street, New York, is continuing his lecture program and on October 20 lectured at the University of Iowa on the subject of Afghanistan. Fred said that he had not been traveling so much since his return from Asia in November, 1938, but that he was leaving again on October 1 for an inspection trip of considerable duration in the mid-continent oil fields. Fred also stated that he had recently received a copy of the wedding announcement of our classmate Waldo Wildes. This was news to us and very welcome.

Alberto Gonzalez, mining engineer, whom we had not heard from for many years, briefly states that he is an engineer on part time with the Cia Mexicana de Gas, S.A., Apartado Postal 416, Monterrey, N.L., Mexico. Gonzalez stated also that he undertakes professional work as mining and civil engineer for the public. Austin Hyde again briefly mentioned that he is plant engineer for the Beaver Chemical Works, Inc., at Damascus, Va. Chester Chubb, from whom we had not heard for several years, continues as president of the San Antonio Public Service

Company, San Antonio, Texas. Alonzo Isham, whom we last heard from in 1937 as having completed an improved machine for the better separation of gold in mining enterprises, is continuing as a licensed professional engineer at Seattle, Wash., and states that he is "free and open to take up any kind of work anywhere for which a call should come." Incidentally, he recalled my attention to recollections of the celebrated Dewey Parade which most of us will vividly recall as having considerably upset the police department of Boston back in 1898. We at least had occasion, as noted by Lonny, to "remember the Maine." Charles Danforth, whom we had not heard from since 1936, advises that he is healthy; still plays tennis and squash; and has three sons and one daughter. Danforth should, therefore, be right busy as, in addition, he continues as president and manager of the C. W. Danforth Company, analytical and consulting chemists of Youngstown, Ohio.

Charlie Tufts, as previously, is vice-president of the Allied Chemical and Dye Corporation and president of the Solvay Process Company. His family lives in Syracuse, but he makes his business address at 61 Broadway, New York City. Charlie calls attention to a remark made by an American businessman who said he would rather be a Jew in Germany than a businessman in America. I do not believe that many American businessmen feel the same, however, and I am sure that Charlie himself would rather be doing business in a small corner of America than tempting fate amid all the troubles now being experienced in Germany and other parts of Europe. Ed Church, head of the department of mechanical engineering for the Polytechnic Institute of Brooklyn, reports that his health is good and that he is going strong and enjoying life. What more could be desired? Bill Farnham states that he is still enjoying his retirement at the Hotel Alford, East Orange, N.J. He would probably like to hear from any near-by classmates who would enjoy adding variety to his retired state. Al Sulzer, Vice-President of the Eastman Kodak Company at Rochester, N.Y., states that he had a fine trip to France and Switzerland last May and June. Possibly he has had to go to Europe again since then because of the many foreign interests of his company. In any event, world conditions must now be requiring most careful study by him and all of the other executives of his company. When we all attend our fortieth reunion in June, 1941, we certainly hope Al can be with us, for he should have a most interesting story to tell of how his company accomplished the seemingly impossible during these trying times.

Those who saw the financial section of the New York *Herald Tribune* for October 30 were cheered by the picture of William M. Vermilye, Vice-President of the National City Bank of New York and donor of the Vermilye Medal, which is to be awarded every two years by the Franklin Institute of Pennsylvania to a prominent businessman "in recognition of outstand-

## 1901 Continued

ing contributions in the field of industrial management." Reference to this Vermilye Medal was made in a previous issue of *The Review*, and it is pleasant to be able to announce now that the first award of that medal was made at the Franklin Institute, Philadelphia, on November 14 to Lewis H. Brown, President of Johns-Manville Corporation. The Franklin Institute, which has been in existence for 115 years and which takes its name from Benjamin Franklin, from time to time awards medals "to those whose efforts have contributed to a knowledge of physical science and its applications." Over the years the medalists have comprised a most distinguished list of scientists, engineers, and inventors. Vermilye, in his address at the presentation of the medal, called attention to the fact that "the various activities and accomplishments of those distinguished medalists would have been of but little use to us mortals of more common clay had the effect of their labors not been translated into terms of the things which we use in everyday life, by those who exercise managerial ability." He also reminded his listeners that the three M's—materials, men, and management—embrace the essentials of business, but that the greatest of these is management. And he should know whereof he speaks because for over thirty years he has been giving special attention to management problems.

He stated that "one of the most interesting facts that the recent depression has emphasized is that in however bad a position any given industry finds itself, there are always one or more units that are profitable, and the answer always is management." Vermilye, therefore, came to the conclusion that those who control our business destinies might be made more management conscious through the awarding of a medal by an outstanding institution in recognition of achievement along managerial lines; furthermore, he felt that the selection of the Franklin Institute to make the award was "most fitting because Benjamin Franklin, that pioneer of the mechanic arts, was one of the first of the great Americans to be thoroughly management conscious, and also because the Institute during nearly a century and a quarter has been ever ready to acknowledge the achievement of men in the field of applied science, and the recognition of business management as an applied science is a most important, if a somewhat novel, concept."

Vermilye went on to say that "Benjamin Franklin made contracts with those whom he put into the printing business in various places in the Colonies. Copies of these contracts happily have been preserved to us. It is interesting to note that Franklin, who was first in so many business practices that have survived, was also first in establishing the chain system in business. The first chain of which we have a record in this country is the chain of Eighteenth Century printing establishments he organized, and the operations of which he supervised." In closing his remarks Vermilye stated: "Professor Gras of Harvard, in the in-

troduction to his book *Business and Capitalism*, enumerates two groups who do not measure up to the standards necessary to successful management, and then Professor Gras says: 'The third group, however, is made up of those who love business administration, doing the big job in the way that helps most people at the time, and looks to results that last longest. They are not good administrators because they seek profits, but they earn profits because they are good administrators. If their firm needs earnings, it gets them. Their business is their masterpiece: Society will profit from it. The creative man, artist, scholar, and philosopher are fashioned from the same vital clay.'"

Logically, therefore, Vermilye came to the conclusion that the Franklin Institute, in awarding the Vermilye Medal to Lewis H. Brown, had honored a man who most completely fitted Professor Gras's convincing description.

The Alumni Office notes the following changes of address: Colonel Theodore A. Baldwin, Jr., 830 Park Avenue, New York City; John Boyle, Jr., Washington Loan and Trust Building, 900 F Street, N.W., Washington, D.C.; Frank W. Green, 1415 South Fourth Street, Louisville, Ky.; Professor William Whipple, Post Office Box 3524, University, La. Ted Lange of Springfield, Mass., also sent in the address of a classmate whose whereabouts have been unknown for several years, viz., that of Albert A. Casani, who, he states, is now located care of the American Bridge Company, Frick Building, Pittsburgh, Pa. Ted said nothing about himself except to mention that he was, as usual, busy taking care of his real estate interests. Acknowledgments of other communications will be continued in the February Review. — ROGER W. WIGHT, *Secretary*, The Travelers Fire Insurance Company, 700 Main Street, Hartford, Conn. WILLARD W. DOW, C.P.A., *Assistant Secretary*, 20 Beacon Street, Boston, Mass.

## 1902

Little class news has reached your Secretary since the last class notes were written. A letter has been received from Robbie saying that he is closing his home in Fairfield, Conn., and will be at the Madison Square Hotel, 37 Madison Avenue, New York City, until April. — Arthur H. Sawyer has returned from Vancouver and is now at 20 West Street, Hingham. — News has been received of the death of Kingsbury in February, 1938. He had been with the General Electric Company in Schenectady for many years and took an active part in the civic life of that city.

A class reunion of small proportions took place at a recent meeting of the Alumni Council. Adrian Sawyer, Bassett, Hunter, and your Secretary sat at one table, and Williams at the next. Proctor is also a member of the Alumni Council, serving on the National Nominating Committee, while Jason Mixter serves on one of the Corporation's Departmental Visiting Committees. — Patch has some pictures of Hawaii which

he is willing to show us. We hope to have a class gathering of those near Boston sometime this month to see the pictures and enjoy a dinner together. — BURTON G. PHILBRICK, *Secretary*, 246 Stuart Street, Boston, Mass.

## 1904

As you read these notes just after what is known as the holiday season, I hope that you all enjoyed one or both of the Thanksgiving days provided for 1939, that you spent a very merry Christmas, and that the new year just starting may be happier and more prosperous than any you have enjoyed in the past.

By appropriate exercises which were attended by a large gathering on October 28, the dam of the Alabama Power Company on the Tallapoosa River at Tallassee, Ala., was officially dedicated as Thurlow Dam to commemorate the service rendered by Oscar Gowen Thurlow to the electric industry and to Alabama. Mert Emerson was invited but was unable to attend and sent the following telegram to Thomas W. Martin, President of the Alabama Power Company: "Regret unable to accept your invitation to dedication of Thurlow Dam. We Massachusetts Technology classmates congratulate your company and Alabama for adopting Thurlow and so recognizing his engineering and human abilities which have so splendidly contributed to the welfare of your citizens, the economic wealth of your state, and the engineering profession of the country." Mert writes that the dam has borne Thurlow's name for a long time but has now been officially proclaimed, as evidenced by a bronze plate suitably inscribed. We are all proud of Thurlow and are pleased at this public recognition.

Professor Charles E. Locke '96 has sent in the following information from *Mining and Metallurgy*, October issue: "Hubert Merryweather, of Bethlehem, has been appointed general manager of ore properties (Bethlehem Steel Co.) . . . Mr. Merryweather was graduated at M.I.T. in 1904. Following several years as mine superintendent at various properties in Michigan and Mexico he came with Bethlehem in 1910, serving as mine superintendent and subsequently vice-president and general manager of the Juragua Iron Co., and vice-president and general superintendent of the Bethlehem-Chile Iron Mines Co. He later conducted extensive mining studies in Spain, Morocco, Venezuela, and other countries." — Frederick W. Horton, who has been investigating the mineral resources of Trinity County, Calif., for the United States Bureau of Mines, has been transferred from Weatherville, Calif., to Casper, Wyo., where he will be engaged in the development of mineral deposits under the strategic-minerals bill.

Frank H. Davis sent the following to the Alumni Office, as to his address and occupation: "With William R. Kales '92, 1718 Kales Building, Detroit, Mich.; vice-president, West Company, 76 Adams Avenue; vice-president, Basin Oil Company." He adds: "In June, I attended the



## 1904 Continued

1904 class reunion at Old Lyme, Conn. It is the first reunion I ever attended and was well worth while." All of us who have attended reunions have always felt that way about them, and we hope Frank comes again. — I have received notice of the passing of another classmate, William F. Tenney, who died August 26. — HENRY W. STEVENS, *Secretary*, 12 Garrison Street, Chestnut Hill, Mass. AMASA M. HOLCOMBE, *Assistant Secretary*, 4817 Woodway Lane, N.W., Washington, D.C.

## 1905

The autumn meeting of the Class was held at the M.I.T. Graduate House on Monday, November 20. After a very satisfying meal served in the new Dutch Grill, the assembly adjourned to a conference room where there was a beautiful fireplace full of wood belonging to Professor So and So, which wood could not be used as there was no more in the house. Outside of that, everything was dandy. Fourteen men were present: Marcy, McLean, Boggs, Parsons, Curtis, Shapira, Donald, Hadley, Buff, Barrier, Fisher, Prescott, Young, and the Secretary.

Principal business was a discussion of the 35th reunion next June. Consideration was asked of Oyster Harbors or a similar type of rendezvous, but a vote for Old Lyme, Conn., found only two dissenters. A committee to appoint committees to make all preparations was selected, consisting of Marcy, Strickland, and the Secretary. It was decided to get the opinions of as large a percentage of the Class as possible on moot subjects via questionnaires which all members will receive and will be asked to consider and act on promptly. Tentative promises to be present at the thirty-fifth have been received from several men who have not attended a five-year reunion for years.

Here's one for the book: Ed Barrier, on a two months' trip all over the U.S.A., but with the Pacific Coast as a general objective, was taking a boat ride somewhere in the state of Washington when he noticed a fellow acting like some '05 men do when on a convention outing. He accosted this fellow and found our old pal, Joe Daniels, III. Joe is still professor of mining at the University of Washington, but Ed says he was just one of the Rotarians (or something) that day. Joe is hoping hard he can make Boston next June.

Through our candid reporter, Andy Fisher, we learn that Piggy Bartlett was in Boston recently, visited Bob Folsom, but apparently did not have time to let the Secretary dig up a little party in his honor. Piggy said he would be present at Old Lyme (a plug) next June if Bob would. Hope you take him up, Bob, as Bartlett wants to try out those rocky golf links again. Andy also dug up a copy of the *Falmouth Enterprise*, dated November 3, 1899, which reads as follows: "Falmouth High School beat Hyannis yesterday, for the championship of Cape Cod. Prince Crowell, the clever half-back of the Falmouth team recovered a fumble and ran 50 yards for a touch-

down." Prince says the reporter was mixed. His brother came back from Brown to play quarterback that day, got the signals mixed, so that the center threw the ball to Prince by mistake and Prince, finding his interference running the wrong way, made up his own signals and scored.

A letter to Walter Bent brings this reply: "You ask me for news. I imagine that there is nothing that is going on in England that you don't read about in the American newspapers. The American colony here in England is greatly reduced, and some of the Americans who were in America with their families were only able to return by themselves, having to leave their wives behind. My own family is pretty well scattered. I have my wife and mother-in-law and one fifteen-year-old boy here in England, but my four other children are in America. Two of them were caught there just during the war. The English press has given the passing of the Neutrality Act in America a very good reception, but on the other hand the Germans don't like it. The one thing about it that I cannot understand is why the American government should sacrifice its entire transatlantic fleet and turn the business over to the Scandinavians and the Italians. Certainly they will get the business, as the English fleet will be too busy bringing over their own supplies to bother about American export business. However, it is easy for me to criticize the American Congress as I am nearly 4,000 miles away, but the American shipping people to whom I have spoken about the matter in London seem to feel the same way about it as I do." (If this passes the censors, you get this low-down, straight from the shoulder. — *Secretary*.)

Errett M. Graham, I, is apparently "off the railroads" for life. He writes: "Your letter . . . regarding change of address found the new address before I did. My family, that is, that part of the family still more or less dependent on me — my wife and youngest daughter (two other children have been out on their own for several years) — have been at the Seattle address since the beginning of the University of Washington school year, and Martha, by this time no doubt, knows just how it feels to be one of several thousand freshmen. I'll be with the family in another month. After thirty-five years of work on the railroads — not being one of those who aspire to drop in the harness — I thought it a good idea to retire while still plenty able to enjoy both work and play, and the Puget Sound country has long been a lure."

Charlie Smart, II, who hasn't been heard from in a long while writes: "I have been works manager for W. and L. E. Gurley, makers of engineering instruments, for over nineteen years. Our son, Russell, was graduated from Dartmouth in 1934 with the degree of A.B. Since then he has received his master's and Ph.D. from the University of Minnesota, and is now on the staff of the Merrill Palmer School in Detroit, Mich. He was

married in August of this year. I have been in the Ordnance Reserve for a number of years and was promoted to lieutenant colonel some time ago, having written a thesis on 'The Standardization of Optical Instruments.' I have tried for the last three years to get to Old Lyme for 1905 class reunions, but every time something has come up to prevent it. I am now planning to be there this June."

Thinking that we might get a peep out of Roy Lovejoy before his southern hibernation, we found our hunch correct. Part of his long letter we quote: "I am going to try to go south again, certainly before it gets too impossible up here. That will surely be by January if all goes well and we keep out of war. Last year we took a trip into the Caribbean Sea, one of those enjoyable winter cruises on the Canadian National steamship lines out of Boston. We had a grand time, but we certainly got into a terrific storm, the worst I have ever experienced on any ship anywhere. We were on board at the time the *Bermuda Clipper* was lost off Virginia. . . . The boat we were on pretty nearly tipped over, stood on end, rolled over, and did everything it could to shake its passengers all to pieces. I have never been on shipboard when everything was absolutely lashed down as it was on this trip. As a whole, however, it was enjoyable. After making that cruise, I stayed in New Orleans and along the Gulf Coast until it got at least warm enough up here so that the leaves started to grow." — Roy tried to get down to our November 20 meeting, but evidently he "smelled snow" and stayed by a fireplace that burned.

Remember A. Senior Prince, X? A questionnaire woke him up, and here's his answer: "It was nice to hear from you and I will try to satisfy your wondering. (a) Have I a new job? Answer: No and I don't seem to be able to lose the one I have got. (b) Have I made a million and retired to a well-earned ease? Answer: Far from a million; working hard and the well-earned ease seems to be a nebulous something in the far future. (c) Why in the merry blazes don't I write the Class Secretary? Answer: Nothing of interest to write about. I am still president of the L. M. Prince Company, have two children — a boy, a junior at Princeton, and a girl at prep school. I am getting old, somewhat fat, still have a medium amount of hair, and am planning next year to come on to the class reunion and present myself in person and renew some of the old friendships."

The *Explosives Engineer*, October issue, tells us that 1905 produced a real expert in safety engineering. Here is what it had to say about Tom Osgood, III: "Health, sanitation, and safety regulations were a part of the Colorado River project before a shovelful of earth was turned or a cartridge of powder detonated. The human safety enterprise is roughly divided into three main branches: 1. Education. 2. Safety measures and conditions. 3. Health, sanitation, medical facilities, and hygiene. The Metropolitan Water District appointed Mr. T. W. Osgood,

1905 Continued

nationally known expert in safety, as chief safety engineer in charge of the safety department of the project. Mr. Osgood is an alumnus of Massachusetts Institute of Technology, where he studied civil and mining engineering. For several years, he was engaged in the practice of civil engineering before specializing in safety engineering. His experience includes railroad location work in Montana and irrigation work, dam construction, and private practice in southern Oregon. Mr. Osgood served with the California Industrial Accident Commission for 14 years, first as safety engineer, and later as assistant chief of the Bureau of Industrial Accident Prevention. On April 1, 1933, he was selected to head the safety organization of the Colorado River project, at that time the largest engineering project underway on the American continent. He remained in this position for more than five years, during which time he saw the great enterprise through all of its important moments. "The educational angle is the most important of any in safety," asserts Safety Engineer Osgood. "It is safety-consciousness, imbued firmly in the minds of men and officers, that largely determines the frequency of accidents. We have demonstrated that with good service, together with adequate safety precautions, accident frequency can be reduced without loss of efficiency."

Bob McLean, II, after spending better than thirty years in the gin business (Carver Cotton Gin Company), resigned to take a position as superintendent of the Whitman, Mass., plant of the United Shank and Findings Company. — The Secretary received word of the sudden death of Reynold M. Harding, I, just in time to provide a floral emblem for the burial, which took place in Everett, Mass. Through Charlie Johnston, III, we have obtained a newspaper clipping from the Columbus, Ga., *Ledger* of October 25: "Reynold Monroe Harding, prominent Columbus businessman, former president of the chamber of commerce for several years and former local manager for Stone and Webster, of Boston, Mass., owner of the old Columbus Electric and Power company, died at his home here . . . at 12:30 o'clock, following an illness of several years. Mr. Harding was born November 15, 1882 at Roxbury, Mass. After attending public schools at Melrose, Mass., he entered the Massachusetts Institute of Technology, where he received the degree of B.S. in civil engineering in 1905. Immediately after his graduation, he accepted the position of resident engineer with Horton and Hemenway, contractors, at Milo Junction, Maine, where the Bangor and Aroostook Railroad shops were being built. For several months after that he was a draftsman with the Big Four R. R. at Green Castle, Indiana. The following year, he was with Horton and Hemenway in Boston; then for three months he was a student with Stone and Webster."

"In 1907 he came to the South where he held various positions with the Savannah Electric company. In January,

1909, he was appointed superintendent of light and power with the Pensacola Electric company of Pensacola, Florida, which position he held until 1912. In July, 1912 Mr. Harding came to Columbus as general superintendent for the Columbus Power Company, Columbus Railroad Company, and the Gas Light Company of Columbus. This position he held through June, 1919, when he was made manager for the next three years. In June, 1922, when these three companies were consolidated into the Columbus Electric and Power Company, Mr. Harding was made vice-president, director and manager. Soon afterward the Columbus Transportation Company was organized and Mr. Harding was made president of that organization. In June, 1926, the South Georgia Power Company was taken over by the Columbus Electric and Power Company, and Mr. Harding was made president of that concern also. When the Columbus Electric and Power Company was combined with the Georgia Power Company, in July, 1930, he was made manager of the Columbus division. Mr. Harding served as division manager until July, 1937. He resigned because of failing health, and after which time he continued to serve in an advisory capacity. When Mr. Harding came to Columbus, the Goat Rock dam had just been completed, and since that time he has supervised the most marked advance of the Power company. In 1925, the Bartlett's Ferry dam was finished, adding 80,000 horsepower to the capacity of the system. In appreciation of Mr. Harding's services as head of the Columbus and South Georgia companies, the board of directors of the organization named the lake formed by the reservoir of the dam for him. Lake Harding is the largest artificial lake in this part of Georgia.

"On January 18, 1919, Mr. Harding married Miss Hettie Elizabeth Crichton, of a prominent pioneer Columbus family, who died on January 8 of this year. He is survived by an aunt, Miss Carrie Harding, of Melrose, Mass., also several cousins in Mass. Mr. Harding was prominent in fraternal and civic organizations, and was affiliated with the Episcopal church. He was a member of Wyoming Lodge, F. and A. M., Melrose, Mass., Scottish Rite, 32nd degree, Pensacola, Fla.; Alee Temple Shrine of Savannah; Darley Chapter, Columbus; a director of the Rotary club; past-president of the chamber of commerce; a member of the former Muscogee club, and a former president of the Columbus Country club." — We also have the sad news that Gertrude T., wife of Warren W. Loomis, VI, died suddenly early in November. Many of us who met and enjoyed her company at previous five-year reunions can sympathize with Warren in his great loss.

Regardless of the choice of site for the thirty-fifth reunion and other details, the reunion will positively take place on June 7, 8, and 9. We had fifty-nine men at Marion in 1925, thirty-seven at Oyster Harbors in 1930, fifty at Old Lyme in 1935. The goal is seventy-five for the thirty-fifth, and commitments already

made to the Secretary indicate at least that number. Reserve those dates *now*. — FRED W. GOLDTHWAIT, *Secretary*, 274 Franklin Street, Boston, Mass. SIDNEY T. STRICKLAND, *Assistant Secretary*, 75 State Street, Boston, Mass.

## 1906

Your Secretary apologizes for the lack of notes in the November Review. It is probably unnecessary to confess that the duties of this office do not weigh very heavily upon me most of the time, but I have tried to be accounted for whenever the 1906 notes are due to appear. The November notes, however, were due while the Secretary was enjoying his rather late vacation, spent at Nantucket and Cape Cod and at the New York World's Fair. While on the Cape we ran across Ralph Patch, whose family were there for the summer. I arranged a golf game with Ralph which started out auspiciously at the Bass River course on Sunday morning, September 17. (I use the term "auspicious" in spite of a 6 on the first hole.) However, the game was called off after about ten holes on account of a severe rainstorm. Ralph was in a particularly good mood as he announced the birth of a grandchild. Ralph's daughter taught music in the schools of some Cape Cod towns for a number of years and then married a Harvard man who is one of the Cape's young bankers. The couple have become "confirmed Cape Codders."

While on the Cape, we also called on Andy Kerr at his home in Barnstable. Andy showed us around his most interesting house, one of the oldest on the Cape, which he has modernized sufficiently to make a most comfortable home, at the same time retaining its early-American features. Andy is a very busy man with numerous business and organization activities. He is operating two canning factories, one in Barnstable and the other in Maine. He is interested in the Oceanspray cranberry organization and does considerable traveling, especially in the winter. This winter he hopes to go to the West Coast and Honolulu and, even at this time, may be hobnobbing with our Hawaiian classmates.

While cruising through Osterville we stopped long enough at the Oyster Harbors Club to make a reservation for the 1941 reunion — "believe it or not." It was all very tentative, but Mr. Wannop, the manager, entered it in his book, and that should make it official. As you know, Alumni Day is usually the first Monday in June; therefore our reunion week end should precede that. The dates of the reunion, then, will be Friday, May 29, through Monday morning, June 2. Classmates are hereby urged to make any kind of notation necessary for them to keep this date in mind. Upon advising Frank Benham of the date, he replied that he had already begun to work on his golf game so as to wrest the class championship away from Allyn Taylor.

Recollections of the New York World's Fair remind the Secretary that one day last summer he talked by telephone with Ralph Clarke, who admitted that he had



## 1906 Continued

become a New York World's Fair fan. At that time he had made a number of visits to the Fair and was planning to spend much more time there.

The *Boston Evening Transcript* of August 22 contained the following notice: "Miss Georgianna Ames, librarian of Radcliffe College for the past 12 years, was married to Thomas L. Hinckley of Cambridge on Saturday afternoon [August 19] at North Easton, it was learned today. Mrs. Hinckley is the daughter of the late Mr. and Mrs. Fisher Ames of St. Paul and the great granddaughter of Oliver Ames of North Easton. Mr. Hinckley is the son of the late Mr. and Mrs. Nathaniel C. Hinckley, also of St. Paul. He is engaged in municipal research. The Rev. Arthur Wilson, retired Unitarian minister of Brockton, performed the ceremony, at the home of Miss A. H. Ames. Only close relatives attended. Mrs. Hinckley is a graduate of the University of Minnesota and attended Simmons College. Mr. Hinckley was graduated from the Massachusetts Institute of Technology. They will be at home at 83 Lakeview Avenue, Cambridge, after October 1."

Our thanks to Carole A. Clarke, Assistant Secretary of the Class of 1921, for the following information: "The editorial page of the September issue of *Mechanical Engineering* (page 679) has a very interesting article headed 'Salute to Furer,' commending the work of William C. Furer, Secretary of the Engineering Association of Hawaii." — Ordinarily the address changes we receive from the Alumni Office from time to time are merely recorded in our card index as a matter of routine. The following, however, may be of interest: George F. Hobson, major, United States Army, is now reported at Headquarters, Panama Canal Department, Quarry Heights, Canal Zone; his former address was Philadelphia. E. M. Berliner is now reported at 155 South Rodeo Drive, Beverly Hills, Calif. After many years of wandering, Berliner seems to have located finally in the United States. Our card record shows that through 1936 he was in Montreal, Canada, for most of the time with the Berliner Gramophone Company, which later became the Victor Talking Machine Company of Canada, Ltd. In 1936 his address changed to London, England, where he was until this last move. — Professor Locke '96 reports via Carl J. Trauerman '07, President of the Mining Association of Montana, that Charles Willis was elected to the board of governors of the western division of the American Mining Congress.

Review readers do not need to be reminded that the Technology Men in Action portion of the magazine, which occupies the section just previous to the news from the clubs and classes, frequently contains references to classmates and also includes a list of the deaths. — As these notes are being compiled, the Boston papers are devoting considerable space to Wilford D. Gray, who died rather suddenly on November 23. Classmates, even in Boston, will probably be surprised to learn that Judge Gray spent two years at

Technology in our Class. At the end of that time he transferred to Boston University where he obtained his law degree in 1908. As a graduate of Boston University, Gray apparently preferred to devote his college affiliations to that institution; the Secretary has no recollection of his having taken any interest in Technology affairs.

An expert in both criminal and civil law, he taught at Boston University for many years. He was appointed a judge of the Massachusetts Superior Court in 1925. Previous to that time he had served the city of Woburn, Mass., in various offices and as mayor in 1917 and 1918. At the time of his death he was associate justice of the Superior Court and presided at the Middlesex County Superior Court as late as Wednesday, November 22. The *Boston Herald* of November 24 had an extensive write-up of Gray's career, including comments from Governor Saltonstall and other important people in Massachusetts as to his character and ability, and an editorial, one portion of which read as follows: "It fell to Judge Gray to be the first to sit in the pre-trial session of the Superior Court which had been introduced here in an effort to expedite administration and to relieve congestion of the calendar. The experiment might have been a fizzle under an inept individual. Judge Gray started and carried on the session admirably. His solid qualities as a lawyer and judge, his unusual alertness, his ability to get along with litigants and to make them get along with one another were just what this Massachusetts novelty in judicial administration required. His achievements there will be remembered longest. Perhaps they were his outstanding specific contribution. But the combination in him of the lawyer, the judge, the man of affairs and the lovable companion were what endeared him to people most of all." — JAMES W. KIDDER, Secretary, Room 802, 50 Oliver Street, Boston, Mass. EDWARD B. ROWE, Assistant Secretary, 11 Cushing Road, Wellesley Hills, Mass.

## 1907

John G. Barry, consulting mining and geological engineer, has a new business address, 1611 North Mesa Avenue, El Paso, Texas. — Harold P. Farrington's address of record now is R.F.D. 1, Danbury, Conn., his home. — On November 15, I had a telephone conversation with Roger D. Gale at his home, 30 Dudley Street, Reading, Mass. For two years after graduation Roger was research assistant in physical chemistry at the Institute, and then went with Sanford Mills in Reading, manufacturers of artificial leather and rubber-coated cloth, where he is now works manager. He has never held public office or been particularly active in any interests outside of his business and his wife and two children. His son, Richard, who is twenty-five years old, was married last spring and is connected with one of the DuPont stores in Worcester, Mass., and the eighteen-year-old daughter, who was graduated from Reading High School in 1939, is taking a secretarial course.

During November I also talked on the telephone with Prescott R. Nichols, John S. Nicholl, and with the sister of Ernest A. Miner, who resides at her brother's former home in Malden, Mass. Prescott is chief engineer with the Reading, Mass., municipal light department, other facts being as recorded in the January, 1938, Review. — John Nicholl, II, who entered the Institute during our junior year, transferring from Princeton University, was president and treasurer of Riverside Boiler Works, Inc., at Cambridge, Mass., for twenty-five years, but in 1938 this business was liquidated, and John is now a manufacturer's agent for lines of valves and miscellaneous mechanical goods. He lives at 37 Old Farm Road, Wellesley Hills, Mass., with his wife and three children, the oldest of whom, John, Jr., was graduated from Princeton in 1939. — Ernest Miner was a Course I man. From 1907 to 1914 he did engineering work with the Boston Elevated Railway Company and the Boston Edison Electric Illuminating Company, and then during the war period, following a connection with the Norton Company of Worcester, he did machine-shop work at the League Island Navy Yard in Philadelphia and at the Fore River shipyards in Quincy, Mass. Drafting at the United States naval training station at Newport, R. I., then preceded an eleven-year period as computer with the War Department at the Aberdeen Proving Ground, Maryland. From December, 1933, to July 1, 1937, he did drafting at the Brooklyn Navy Yard, and since then has retired. He never married and lives alone in a small portable house at Cleveland, Fla., with no particular occupation.

I have received from Carl Trauerman a very attractive and interesting sixty-two page booklet of magazine size, entitled "Seven Talks about Mines," issued by the Butte, Mont., Chamber of Commerce. These talks were all made before the Butte Rotary Club during the spring of 1939, our energetic classmate, Carl, being one of the speakers. Copies of this booklet may be obtained from the Butte Chamber of Commerce with Carl's compliments. Carl writes that, last August, John Kinnear was re-elected for the sixth time to the board of governors, western division, of the American Mining Congress. He also says that he met Sam Coupal at a silver conference in Reno in March and again at Salt Lake City, and that Sam looked fine and was making good progress in the project which he heads, the Arizona State Department of Mineral Resources.

A bit of information regarding Frank Vanderstucken, supplementing that given in the June Review, is made possible through the Alumni Office plus our classmate Henry Martin. Frank's home address is now 541 West 113th Street, New York City, although in November he was working for the Riley Stoker Corporation in Worcester, Mass. — Word was received in November of the death of Waldo Alton Rich on September 21. Rich was associated with our Class in the Mining Engineering Course but was not gradu-

1907. Continued

ated. His most recent address was in New York City, but I never have heard from him and know nothing of his family or business life.

On November 1, I received notice from the alumni headquarters that Frank MacGregor's address was Room 3410, Nemours Building, Wilmington, Del. As I had supposed he was in Buenos Aires, I wrote to him at the new address on November 3 and received the following reply, dated November 15: "Just off the boat from Buenos Aires on Monday, November 13, and Tuesday when I reached Wilmington I found your letter. Could not figure how you knew my address till I read it (I told him I had word from the Alumni Office — Secretary) and then found a post card acknowledging my change of address for The Review. At the same time the card gave me the address of the Secretary of the nearest Tech Club, which is Philadelphia. Some efficient system of the Alumni Association!"

"Now today I have your second letter regarding closing time on '07 notes, so the Secretary of 1907 seems to be just as efficient. I had not written you of my move because I wanted to give you a complete story, but on account of your request for a letter I'll give you the story to date. After leaving the reunion in Boston in June, 1938, I took an extended trip of a month to the West Coast. Stopped off at Chicago, where I had lunch with Jim Barker; then to Denver, where I lived for a while in 1913 and 1914; then to the Grand Canyon of the Colorado, which I had not seen since 1911. Wanted to see if it was just as awe inspiring now as it seemed to me twenty-seven years ago. It was! Then to San Diego, Los Angeles, San Francisco, Redwood Forest, Portland, and, finally, Seattle, where I renewed old times with Albert Greene. Thence back to Chicago, taking time out for a telephone conversation with John Frank, and back to Wilmington. Then a motor trip down to Virginia, taking in the renovated or restored Williamsburg; thence up to New England.

"Sailed early in August, 1938, for England on the S.S. *Queen Mary* — her record run on the eastward crossing. A few walking tours in southern England — beautiful country; I had seen only the cities on previous trips, but had always wanted to see the countryside. Then a motor trip along the Wales border and the Scottish border. Over to Paris for a week, then back to England, from where I sailed for Buenos Aires late in September. Boat stopped at Lisbon for a day and night, so I had a chance to see a bit of Portugal.

"Early this year I had plans all made to fly to Chile and take the train to the south to do some salmon fishing as I did three years or so ago, but the earthquake came along and demolished the one railroad and some of the towns where I would have been. So I abandoned the trip and went up in the Córdoba Hills in the Argentine. Everything going well in Buenos Aires, in a business way and otherwise. After five years of pleasant living and working there, I sailed on October 27 for New York. (Saw no sub-

marines but had a Kodak handy.) At present no plans." — BRYANT NICHOLS, Secretary, 126 Charles Street, Auburndale, Mass. HAROLD S. WILSON, Assistant Secretary, Commonwealth Shoe and Leather Company, Whitman, Mass.

## 1908

Edgar I. Williams was one of the judges for the thirty-second annual Paris prize architectural competition during the past summer. — Word has been received that H. Ross Callaway is now division manager of the American Brake Shoe and Foundry Company, 230 Park Avenue, New York, N. Y., of which company Bill Given is president. — We regret to report the death of Robert Pike which occurred on February 7.

We have the following changes of address to report: Richard C. Collins, 152 Woodside Avenue, Ridgewood, N. J.; Mrs. Ruth M. Denny, Post Office Box 525, Sonoma, Calif.; Paul E. Fernald, Veterans Administration, Fort Lyon, Colo.; Richard Y. Kennard, E. Johannisson, 189 West Madison Street, Chicago, Ill.; Mrs. Elizabeth S. MacDonald, The Parsonage, Sturbridge, Mass.; Archer C. Nichols, City of Greenwood, City Hall, Greenwood, S.C.; Joseph H. Sinclair, 95 Beekman Avenue, North Tarrytown, N.Y. — H. LESTON CARTER, Secretary, 60 Battery March Street, Boston, Mass.

## 1909

Not a great deal of news this month, but of great importance to Mrs. Gustavus J. Esselen (Henrietta Locke) is the birth of a granddaughter, Susan Prentice Bachrach. — Charles Camsell, deputy minister of mines and resources for the Dominion of Canada, is conducting a personal investigation of the possibilities of the oil industry in the province of Alberta, having regard in particular to the proposal that a pipe line be constructed to the Great Lakes. — Mayo Hersey is one of the coauthors of a new book on applied mechanics, being responsible for a chapter on "Thermal Equilibrium in Journal Bearings." — It is with regret that we announce the death of Clifford W. Gammons on July 5. — CHARLES R. MAIN, Secretary, 201 Devonshire Street, Boston, Mass. Assistant Secretaries: PAUL M. WISWALL, MAURICE R. SCHARFF, New York; GEORGE E. WALLIS, Chicago.

## 1911

Once again we had a most successful "seven-come-eleven" dinner on the seventh evening of the eleventh month at Walker Memorial, with nineteen classmates present. We were fortunate in having Carl Ell, XI, as our guest of honor in recognition of his being president-elect of Northeastern University in Boston. The night was also memorable from the fact that for the first time we were favored with the presence of a coed at a class dinner: June Adkinson, VII. We were also favored by the presence of Walter Allen, XIII, of Peabody, who hadn't attended a class function for many years, and Charlie Maguire, I, of Providence, who was making his first appearance.

In reviewing the history of Northeastern University for us in a delightfully intimate after-dinner talk, Carl paid particular tribute to Frank Palmer Speare, who becomes president emeritus in June and who forty-two years ago had an idea embodied in the slogan "Earn while you learn." In 1897 Dr. Speare started with an evening law school, following this with an evening business school. Then in 1909 — the year Carl joined our Class after graduating from De Pauw University — a day engineering school was started, with Carl working in his spare hours as director of the small group who studied civil engineering. Since the World War a day school of business administration and a day school of liberal arts have been formed, the five groups combining to make Northeastern University. In addition the university now has the Huntington School as well as an evening preparatory school of its own and the Lincoln Institute. The latter is an evening engineering group which is to Northeastern what the Lowell Institute is to M.I.T.

Contrasting the old and new Northeastern, Carl said that much better selection of students is now possible and that there is a more definite plan of courses, with particular emphasis on college education by day and adult education by night, always with the combination of work and study. Five years are required for all the degree-granting courses. He also contrasted the \$15,000 budget in 1917 with the present \$500,000 annual budget in the engineering school alone, which school has a faculty of ninety-nine. Describing the new engineering school building, recently built at a cost of \$800,000 "out in left field at the old American League park on Huntington Avenue," he said this was the first of eight proposed buildings to cost a total of \$4,000,000. As he approaches his new responsibilities at the conclusion of the current school year, Carl says the job, as he sees it, is to make the institution — buildings and program — permanent. He says the laboratories now are really superior to those we had back in the 1907-1911 period. The student life at Northeastern he described as splendidly organized. In conclusion he said: "Come and see what Northeastern does to boys!"

In the "talk around" Carl said he and his wife have one daughter, who received her A.B. at De Pauw in 1937 and who attended Boston University School of Education for a master's degree last year, until illness forced her withdrawal. This fall, however, she was able to resume her work at B.U. He also very graciously thanked us all for thus honoring him and for listening to his story so attentively.

June Adkinson told us that she certainly was glad she had at last come to a class affair. She came to us during our senior year for a course in biology under Dr. Prescott '94, having the year before been graduated from Radcliffe College, *magna cum laude*. She paid tribute to Dr. Sedgwick, former Head of the Biology Department at Tech, and said he secured both her first and her present job for her.



1911 Continued

She had planned to be a teacher, but her course at Tech interested her in hospital laboratory work. Her first position was at the Worcester State Hospital, where she spent nearly ten years. Ever since then she has been connected with the allergy laboratory and clinic of the Peter Bent Brigham Hospital in Boston and enjoys her work immensely.

Walter Allen said he spent twelve years after graduation in his chosen profession — naval architecture. Then in the mid-Twenties, when this field became quiet, he entered the consulting engineering field, first in New York, spending four years with New York Edison, and then with Stone and Webster, specializing in construction. He is at present in Peabody with the A. C. Lawrence Leather Company. He and his wife, nee Marian Congdon, a former schoolmate of mine in Framingham, have one daughter, who was married this year; a son, who is with the Curtiss-Wright Airplane Company at Clifton, N.J., and twin daughters, fifteen years old.

Charlie Maguire, the other prodigal son, looks very much the same, save for more avoirdupois. He interjected much of his characteristic Irish wit in his "life story." He was "exposed to civil engineering at M.I.T. for only two years," transferring then to Holy Cross. He joined his father's construction company and continued there until the '31 depression, when they closed out the company and Charlie took a political job. He became commissioner of public works in Providence in 1933, continuing in this position until late 1938 when he formed Charles A. Maguire and Associates, consulting engineers, 603 Turks Head Building, Providence, R.I. His daughter, who is a senior at Trinity College, Washington, D.C., spent last year at the Sorbonne, arriving home in late August just ahead of the war. His son, who is in Long Island Military Academy, hopes ultimately to reach West Point. The family home is at 310 Elmgrove Avenue, Providence.

When called on, Ted Van Tassel, X, brought down the house by responding at once with: "I'm in the same line as our guest of honor — better understanding for people — but whereas Carl works on their heads, I work on their feet." He has a new patented process for shoes which is being worked out with L. Farber Company, shoe manufacturers here in Worcester. He and his family still live at 390 Newtonville Avenue, Newtonville. — The three bachelors — Joe Aaron, VI, certified public accountant with Harry I. Kessler, Boston; George Cumings, VI, a New England Telephone and Telegraph veteran; and Art Leary, XI, math teacher at Boston English High School — upheld one end of the table. The three Edison regulars — Tom Haines, II, Jack Herlihy, II, and Roger Loud, VI — were on deck.

Cal Eldred, VI, who has for fifteen years been mechanical superintendent for Hollingsworth and Vose, paper manufacturers with plants at East Walpole and West Groton, paid a nice tribute to Carl Ell, who was assistant dean of the Northeastern engineering school when Eldred

came from a teaching job at Pratt Institute, Brooklyn, to instruct at Northeastern. Eldred soon discovered that Carl's outstanding quality was his ability to work hard and long. — Alec Yereance, I, assistant manager of the New England branch of the Prudential Insurance Company, handling mortgage loans, said that his daughter — now a junior at Smith College — had to postpone a trip to the Sorbonne this year because of the war.

Roger Loud's oldest son, Warren, who is a sophomore at the Institute, came around to see his dad before dinner, and all the early comers had the pleasure of meeting him. — Ernest Batty, II, was present, but his old-time side-kick, Obie Clark, II, was kept away by a directors' meeting of the Quincy Co-operative Bank. — Roy MacPherson, II, came in from Framingham as usual, and O. W. Stewart, I, told us that to date the Associated Factory Mutuals, whose inspection division he manages, have paid \$5,700,000 on industrial hurricane losses from the ravages of the September, 1938, big wind. He also said that demands for bombardment and sabotage insurance are now being made by industrial concerns both here and in Canada. — Your Secretary made the nineteenth classmate present at one of the most enjoyable class dinners we've ever had. As we neared the end of the evening, the matter of another ladies' night was brought up and those present were practically unanimous in adopting a suggestion of O. W. Stewart that we hold such a mixed party in the early spring. More of this, then, later.

Art Coupal, II, and Emmons Whitcomb, X, had planned to come but didn't, else we would have matched last year's fine total of 21. The night chosen happened to hit a few just wrong. For instance, John Alter, IV, teaches at the Boston Architectural Club evening class on Tuesdays and Fridays; Johnnie Bigelow, IV, and Bog Stevens had election-day duties which prevented their attendance; and on that night Morris Omansky, V, resumed teaching a University Extension course on the "Practical Compounding of Rubber," a course he inaugurated last year. By the way, Bog and his wife were blessed on October 9 with a son — Edward Martin — which he claims "makes the youngster the baby of the Class, unless Pete White beats me." Congratulations, Bog, and glad to hear mother and son are doing nicely.

From his reply card we learned that Ben Werby, VII, proprietor of Werby Laboratories, Inc., 88 Broad Street, Boston, has a son, Russell Thorne, now a senior at M.I.T. in Course X. Ed Kenway, I, still in the sales organization of the United Shoe Machinery Corporation, Boston, has changed his residence from Newtonville to 10 Potter Road, Framingham, Mass. Harold Soule, III, a salesman for Stone and Forsyth Company, Boston, is now living at 38 Newbert Avenue, South Weymouth, Mass.

Another honor came to Fred Daniels, VI, President of Riley Stoker Corporation here in Worcester, when in early November he was elected president of the board

of trustees of Worcester Academy, where he prepped. He is also chairman of the executive committee. Fred, Hal Robinson, I, Stan Hartshorn, X, of Gardner, and yours truly made a 1911 quartet at the annual fall dinner meeting of the Worcester County M.I.T. group in late November. Stan and his wife have a daughter who is a junior at Radcliffe.

Nat Seeley's boy, Frank — a sophomore at the Institute — has this fall been named a staff assistant on *The Tech*. A recent issue of the paper, describing *The Tech's* 13 to 0 victory over *Voo Doo* in their annual mid-November gridiron battle, said of their second touchdown: "After intercepting a Voo Doo facsimile for a forward pass, Franklin P. Seeley '42, scored a few plays later from the six-yard line."

By the time these notes appear, Emmons Whitcomb's mid-November application for "a certificate of public convenience and necessity to operate an airplane service between Chicago and Boston" will undoubtedly have been granted, and you'll find United Air Lines operating planes for air mail, passengers, and express between Boston and Cleveland and through service to Chicago, eliminating the flight now required to New York for such service. — Included among the four judges for the thirty-second annual Paris Prize architectural competition this summer was Ralph Walker, IV. — These notes will appear right in the middle of the holly and mistletoe season, and Jack and I sincerely hope that all classmates and their families had an unusually merry Christmas and have a happy and prosperous New Year! Don't forget to include "Write to Dennie" in those resolutions for 1940, and then keep the resolution; that's what makes good class notes, as you all know well. — ORVILLE B. DENISON, *Secretary*, Chamber of Commerce, Worcester, Mass. JOHN A. HERLIHY, *Assistant Secretary*, 588 Riverside Avenue, Medford, Mass.

## 1912

Thumbing through the pages of a recent issue of *Electrical World*, we happened on a picture of the smiling countenance of James A. Cook, VI. The caption and accompanying story told about the General Electric Company's (West Lynn, Mass., works) celebration of the fiftieth anniversary of successful watt-hour meter manufacturing, and it appears that our own Jim Cook acted as toastmaster at the banquet which topped off the affair. A little correspondence with Jim developed the additional information that he has been president of the Lynn Chamber of Commerce, and it was in that official capacity that he got himself into the news in connection with the celebration. Of course, most of us will recall that Cook has for some years been general manager of the Lynn Gas and Electric Company, doing a swell job there, according to reports we hear from other sources. Jim writes that he feels a little downcast when he looks for these class notes, and finds so little sandwiched between the Classes of 1911 and 1913. So do we!

1912 Continued

Clarence McDonough has at last been heard from in Austin, Texas. His letter follows: "Perhaps you have wondered where I have been for the last few years when you have heard nothing from me. I have been rather busy in Texas carrying out the Lower Colorado River Authority project covering the construction of four dams on the Colorado River, together with the disposal of the power generated from our power plants. I am sending you a pamphlet covering some of the work which we are carrying out. With this information, I am hopeful that I can draw a pass for my many years of silence."

Harold R. L. Fox has been confirmed secretary of state for the colonies in the post of general manager and chief engineer of the Jamaica government railway, as from January 12, 1939. Fox was born in Jamaica in November, 1889. After his school days at Epsom College, England, he was graduated as B.Sc., mining and civil engineering, from M.I.T. with our Class. He worked on railways in Canada and in the West Indies from 1912 to early 1915, and served in the World War with the Royal Engineers in France from 1915 to 1918, retiring with the rank of captain. From 1919 to 1921 he served as district engineer, public works department, British Guiana, and as engineer in the bauxite mines on the Demerara River. From 1921 to 1926 he worked on the Jamaica government railway as construction engineer, and was appointed chief engineer in 1926, which post is now combined with that of general manager.

Theodore F. Kalbfleisch, Jr., is now superintendent of buildings and grounds for the Glens Falls School System, Glens Falls, N.Y. — Your Secretary is pleased to report that Carl Somers is busy adding a 13,000 square-foot addition to the Lewis-Shepard Company plant at Watertown. Carl built the original plant in 1925 and this is his fifth contract for building additions. Now we are hoping that business won't slump on us again. — FREDERICK J. SHEPARD, JR., *Secretary*, 125 Walnut Street, Watertown, Mass. DAVID J. McGRATH, *Assistant Secretary*, McGraw-Hill Publishing Company, Inc., 330 West 42d Street, New York, N.Y.

## 1913

One of the few from our large Course I group who followed civil engineering is Frederick T. Morse. Until 1932 he was in railroad work — maintenance and construction. Since 1932 he has been caring for, and operating, several hundred acres set out to almonds at Paso Robles, Calif. Freddy says that he expects to handle 50,000 pounds this season, at a profit. His son who has an M.S. from California Institute of Technology, works for the county of Santa Barbara, Calif., on highway construction. — Gene Macdonald, I, has just returned from Venezuela, where he was on a sales trip for bridges and other engineering work. Gene reports that it is a nice country, for the Venezuelans. — Gerry Fallon, III, has become a benedict. On November 7 he married Miss Catherine M. Downey of West Roxbury, Mass. Our Professor Townsend puts

it thus: "Gerry has finally capitulated. His act leaves about three die-hards still in the Class. This latter group would seem to include myself." Gerry used to boss the freshman football team. Congratulations to Mr. and Mrs. Fallon.

Bill Mattson wrote this very sad message: "I have just been informed that on November 14, Jose M. Cadenas, I, died of heart disease in Havana, Cuba. He was a native Cuban and prominent in many activities in his home city of Havana. He lived in a beautiful mansion in the Vedado section. Shortly after graduation at Tech, he became city engineer of Havana, and was also active in many business and engineering enterprises in that city. Some years ago he became connected with the University of Havana and was elected president, which position he was filling at the time of his sudden death." Cady was a prince of good fellows. I had the pleasure of visiting him in Havana in 1928. He was a gracious host, as he was always a gracious man. Bill Ready wrote: "Am mighty sorry to hear that Cadenas has passed on. He was one of the brightest, perhaps the brightest student, in our Class and a mighty fine fellow in addition. I knew him before he went to Tech, and he was always happy go lucky. A book never seemed to be of interest to him; yet when the old exams came around, he headed the Class." Yes, Bill, Cady was a mighty fine fellow, and mighty able. — FREDERICK D. MURDOCK, *Secretary*, Murdock Webbing Company, Box 784, Pawtucket, R.I.

## 1914

As noted in the December issue of The Review, your Secretary saw Lester Forbes in Paris last summer. Since then we have been wondering what he had done since the declaration of war, because for many years Forbes has made his home in Paris. The answer has arrived and is so interesting that it is being included here. Forbes writes: "Feeling certain that there would be war, I was fortunate enough to get my family off to America on the S.S. *Manhattan* three days before war was declared. They arrived safely and are now installed in an apartment in Brookline. Apart from the fact of being separated from them, I have no regrets that they are not here.

"Paris is naturally pretty well blacked out at night, and automobile lights are painted blue to reduce the light to a minimum. After dark every effort is made to prevent lights from stores, cafés, and, in fact, all buildings from being seen outside, and most windows have strips of gummed paper on the inside to reduce possibility of injury from flying glass in case of concussion effects. Many buildings have *abri* signs pasted near the front door on which is indicated the number of persons the *abri* will accommodate. Although during the first few days of the war subway, bus, taxi, and train services were considerably reduced, conditions are very much better now and improving. When I go out at night, it is with a flashlight in one hand, to keep me from falling off the curbstone and to signal my pres-

ence to passing automobiles when crossing the street, and with a gas mask slung over my shoulder. It is not pleasant — this sinking feeling one gets in the stomach when the sirens start their infernal noise at three or four o'clock in the morning as they have done two or three times, followed by dressing in the dark, going down to the *abri* with the gas mask, and waiting for the sirens to announce the end of the *alerte*, if nothing more."

Dean Lobdell '17 reports that he recently visited Alvah Holway at his home in Winnetka, Ill., and found that aside from his paving contracting business Holway has established quite a reputation as a collector of Chinese postage stamps. At the present moment this hobby must require quite a bit of knowledge of geography. — On November 4 your Secretary had the pleasure of attending the wedding of Leicester Hamilton's daughter, Jean, to John B. Stevens of Nashua, N.H., a graduate of Harvard and now at the business school there. — On the general subject of marriages of children of '14 men, Paul Owen writes that he believes he holds the class record, although he is not very proud of it, and hopes for the best this time. He has a daughter who on September 21 was married for the third time.

One excellent bit of news has just arrived. The Marine Corps Selection Board, reporting on November 20, has placed Lucian W. Burnham first on the eligible list for promotion from the grade of major to that of lieutenant colonel. — The Taxpayers Association of Bourne, Mass., has chosen Donald Dixon as vice-president.

The Burlington, Vt., *Free Press* carried an article recently in which Clarke Atwood came in for considerable praise. Vermont, being a dairy state, naturally has considerably interest in the use of skim milk as the basis for casein paint, a product in which Atwood has been a pioneer. The article credits Atwood with finding an annual market for twenty million gallons of skim milk from the dairy surplus.

On November 22 your Secretary visited Worcester, Mass., to speak before the Worcester County Alumni Association. He was happy to find at the meeting our classmates Arthur W. Johnson, purchasing agent for the State Mutual Life Assurance Company, and R. F. Zecha, now engaged in engineering work with the American Steel and Wire Company. A. J. Hoyt, who is also with that company, had planned to attend but unexpectedly had to go to New Haven that day. — H. B. RICHMOND, *Secretary*, General Radio Company, 30 State Street, Cambridge, Mass. CHARLES P. FISKE, *Assistant Secretary*, 1775 Broadway, New York, N.Y.

## 1915

May this year of our twenty-fifth reunion find you and your families in the best of health and cheerful spirits, with every good chance for success and prosperity. Only 159 days left to our Silver Reunion in June. You will soon be getting the first news of our plans.



1915 Continued

From Sam Berkowitz, 247 Park Avenue, New York City, member of the New York City reunion committee, has come the following splendid letter: "... I returned this morning from a four-week trip, which took me to the Coast. I am still covering the country, and making about four or five trips around the States every year, but I manage to take plenty of time off for some good fishing. This last trip was a very interesting one because I landed in British Columbia — just after the ice went out of the lakes in the Kamloops district — and was able to hook into some of those Kamloops trout, a species that can be found only in this particular section of the world. For the last twenty years fishing has been my particular hobby, and with the vast number of fishermen that are on the loose these days, it is becoming quite a problem to get good fishing. If you can get in by automobile, the fishing is bound to be poor; so today, we have to go back to pack horses, though of course in some sections of the country we can fly in with amphibians.

"I have had some particularly interesting trips into the Idaho primitive area, which included a ten-day horseback trip and flying out after we were snowed in. I have had some exceptional fishing experiences in the Everglades of Florida, in unchartered rivers where tarpon up to 100 pounds can be gotten on ordinary bass tackle. I have just received my annual complimentary fishing license from the governor of Maine, so I will have to be up there about the middle of June. I hope to have at least a dozen fishing licenses before the end of the year, which is a goal I have set for myself for many years past. I feel that hobbies are very essential to round out one's business life; and fishing, together with photography, has helped me considerably. I tried golf a couple of times, but I just can't seem to make the grade there. . . . — I suppose if Sam were to tell us in person about some of his fishing exploits, we would get some of the usual fisherman's tall stories, boats, and exaggerations. Never mind, Sam, somebody would believe you.

St. Elmo Tower Piza wrote an unusually amusing letter, but strict censorship prevents my putting it in the notes. It's so choice that I promise to read it at our reunion dinner. However, I give you another of his charming letters, typical of him and certainly a masterpiece in composition: "... My annual correspondence urge, you may recall, blossoms, if at all, usually in mid-August. But what with the dry spring, I fear the roots may have withered; hence this line, before the season is past, by way of forestalling a possible failure of the crop. At best the crop will be meager. No news that's fit to print and hardly any stories.

"Some of the young here in New York still want to be architects in spite of all we can do at New York University to dissuade them. So I'm still a pedagogue, sworn to uphold the Constitution of the United States, and wondering between times whether I'm really as different from the young aspirants who sit politely and

listen to my opinions as they seem to think I am. After all, I have more hair than many of them and my bridgework doesn't show except when I'm amorous. In other words, the practice of architecture still rears its head sporadically. A couple of houses each year have been sufficient, thus far, to keep the feed-bin functioning. If I get three next year, I'll come to the reunion, and this time with a new story or two. But why not stop by here some day, just to select the best ones from the files and keep me posted on the most recent refinements of your activities in Boston? My best to Frank Scully, George Rooney, and your old, debauched self." — When I did see St. Elmo in New York, it was for a very pleasant visit.

It seems to be my tough luck to be out of town when distant classmates are visiting. Imagine, therefore, my disappointment in missing Harvey Daniels when he was in Boston from Japan. This probably means we won't see Harvey this year at our reunion, as we did at our fifteenth, but I hope to have some news from him for you later. — Although I missed Jerry Coldwell when he was in Boston, he left this note for me: "... I have just returned to the hotel after having delivered a paper on inventory checking before the Boston chapter of the National Association of Cost Accountants. I didn't see anybody fall asleep; so it apparently kept them interested that far. They had an attendance of about 250, somewhat more than I had expected. Had lunch with Frank Scully and dropped in to say hello to Clive Lacy this afternoon; trying to do a lot in a couple of days. Right after Thanksgiving — ours on the twenty-third — I expect to go out to the Coast again for a few days, the fourth trip this year. That's a lot too many times, I assure you. . . ." A Boston newspaper reported Jerry's speech; so apparently he is really a prominent man in this work. More power to him! By next month I shall have reached the end of the accumulated class notes; so if you want this interesting column to continue, write me something about yourself and "Help Azel"! — AZEL W. MACK, *Secretary*, 40 St. Paul Street, Brookline, Mass.

## 1916

While on the Pacific Coast during the month of October, your Secretary had a very pleasant luncheon with Ken Sully, Ed Clarkson, and Sumner Spaulding. Except for having grown a little heavier, neither Sully nor Clarkson has changed very much. As a matter of fact, they both planned to walk right by me to see if I would be able to recognize them, but I called through the restaurant window and attracted their attention; so you see they have not changed too much in appearance. Both are working for the city of Los Angeles, Ed Clarkson doing chiefly statistical research work, and Ken Sully, as I understand it, being largely responsible for any street and highway improvements. Spaulding is very active as chairman of the architects' section of the mayor's committee for planning the ultimate development of the city of Los

Angeles. Any members of the Class who visit Los Angeles would do well to give these boys a ring, as they are right in the midst of things in downtown Los Angeles and are the same genial chaps we knew at school.

Ken Sully furnished me with the following businesslike statement about Carl Carstens: "Carl E. Carstens, III; business address, Hughes Mitchell Process, Inc., 20201 South Normandie Avenue, Los Angeles; home address, 1452 Post Avenue, Torrance, Calif.; metallurgical engineer; married; has four children — two boys, two girls — oldest fourteen years, youngest five years. Prior to 1929, with Anaconda in South America; from 1929 to 1934, with The Dorr Company; from 1934 to the present time, with the above-mentioned company. Reports that several times he has seen G. Harry Meiner, 1214 Western Avenue, Glendale, Calif., who was with the Class at one time and is in the electrochemical industry."

Jim Murdough, who has been teaching for some time at Texas Tech College, Lubbock, Texas, has received the title of professor in the department of civil engineering. — Bill Barrett, who for some time has been living in New York City, is now living on Brookside Road, Darien, Conn. — New York is to have a dustless ash dump, designed to transfer ashes from the sanitation department trucks to barges within a closed structure. This form of structure was first suggested years ago by Walt Binger, commissioner of borough works and former deputy commissioner of sanitation in New York. Walt had worked out plans for the well-type steel scows, many of which have already been delivered and will be used at the new dump. — JAMES A. BURBANK, *Secretary*, The Travelers Insurance Company, Hartford, Conn. STEVEN R. BERKE, *Associate Secretary*, Coleman Brothers Corporation, 245 State Street, Boston, Mass.

## 1917

Walter J. Beadle, assistant director of the development department of E. I. du Pont de Nemours and Company, Inc., Wilmington, Del., paid a call to the Institute this autumn in his official capacity as president of the Technology Club of Philadelphia. He was rather alarmed to find that the dominion of Philadelphia was being represented on the Alumni Council without any official action by the Club. Since one of your Class Secretaries happens to represent Philadelphia on the Council, the situation was peculiarly embarrassing. An extended conference with one of the Deans of the Institute during luncheon at Avery Ashdown's [24] Graduate House somewhat pacified the delegation of one, particularly when it transpired that technically the date line had passed for action by the Club in changing its representation. Obviously, the Philadelphia Club is in unusually good hands this year, with its interests being protected and advanced. If Walter is as successful with it as he was in the recent gym fund drive and in other alumni matters, the Club should be in for

## 1917 Continued

an especially satisfactory year. Apparently he retains his customary vigor and active interest in numerous matters, including particularly, of course, the fascinating work he is doing for du Pont.

Albert F. Hegeberger's address is now care of the United States Army Air Corps, Hickam Field, Honolulu, T.H. William B. Hunter is now permanently located at 610 Salem Avenue, Elizabeth, N.J.

At a dinner of Cleveland Alumni on November 10, attended by H. E. Lobdell, three other 1917 men were present: L. R. Westbrook, V, assistant manager of the chemical laboratory of Grasselli; Guy A. Gray, VI, with The M. A. Hanna Company; and Gale D. Goepfert, who spent two years at Tech in Architecture and is now a duly registered engineer in Ohio.

In the New York *Herald Tribune* of October 22 we noted the wedding of Edward Sampson, professor of geology at Princeton University, to Miss Katherine Van Rensselaer Arnold of Albany, N.Y. Sampson, who spent 1916-1917 with our Class, has been a member of the Princeton faculty since 1925, after five years with the United States Geological Survey. — Dudley E. Bell was married in Philadelphia on October 17 to Helen Smalley Weeks. Their address is 824 Radcliffe Street, Bristol, Pa. In a note to Ray Stevens, he writes: "Now that I have stepped off, I believe that Jack Wood is the lone surviving bachelor of our Class." Dud also reports having seen, more or less recently, Fritz Althouse, Ras Senter, and Dick Whitney, all of whom were doing nicely at the time. In a subsequent trip to New York, Ras was stricken with appendicitis, and the consequent surgery seems to have been unusually unpleasant and serious. Our latest reports indicate that he is safely recovered and, we suppose, back in Dallas.

With the explanation that the Assistant Secretary is pinch-hitting on the last part of these notes, it seems proper to say here that Ray Stevens has been appointed director of a survey of industrial research in the United States. Just what this new appointment involves is not at the moment clear at this distance from the center of affairs. Further information will no doubt be forthcoming. [Meanwhile see page 1 of this section.] — **RAYMOND STEVENS**, Secretary, 30 Charles River Road, Cambridge, Mass. **PHILIP E. HULBURD**, Assistant Secretary, Phillips Exeter Academy, Exeter, N.H.

## 1918

The following was sent me by Pete Sanger: "On November 6 twelve gentlemen of the Class gathered at the Tech-Williams Club on East 39th Street, New York City, and enjoyed one another's company: Granny Smith, Art Smith, Bill Foster, Pete Harrall, Russ Mumford, Jack Kennard, Tom Brosnahan, Walt Robertson, Bill Neuberg, Dagnall, Charlie Gray, and Pete Sanger. Detained somewhere en route were the following brave souls who said they were coming: Julie Avery, Ed Mead, Otto Lorenz, Ev Rowe, and Phil Dinkins. Your war correspondent 'suspicionizes' that they went over

to the World's Fair to help the Hawaiian hula girls pack! What was discussed at said luncheon? This and that and Dr. Compton's very excellent suggestion re a twenty-fifth anniversary present to the school. No doubt the flock will soon hear from the Shepherd or Shepherdess on this matter." It won't be long now before something will be coming through regarding the twenty-fifth anniversary gift and what we may do and where we may be at that time.

Am sorry to say that the news of two more deaths has just come through to the Alumni Office: Russell G. Kimball, I, died in 1930, and Harold R. Underwood, II, on June 19, 1937.

A number of changed addresses are coming through these days: Malcolm J. Baber, 250 South 17th Street, Philadelphia, Pa.; Eli Berman, Berman Radio Company, 20 Stuart Street, Boston, Mass.; Sidney B. Blaisdell, The Edmonds Company, 228 Aborn Street, Providence, R.I.; Dr. Douglas M. Gay, Hockessin, Del.; George F. Halfacre, 417 Residence Park, Palmerton, Pa.; Craig P. Hazelet, Hazelet and Erdal, 53 West Jackson Boulevard, Chicago, Ill.; Abraham Jepsky, 781A Tremont Street, Boston, Mass.; Lieutenant Commander Cornelius V. Knox, United States Naval Air Station, Lakehurst, N.J.; Frederic A. Lane, 53 Farrandale Avenue, Bloomfield, N.J.; J. Woods McCausland, 5648 Dorchester Avenue, Chicago, Ill.; Sherman A. MacGregor, Apartment D-14, 34-15 94th Street, Jackson Heights, Long Island, N.Y.; Carl P. McLaughlin, 6631 North Artesian Avenue, Chicago, Ill.; Hamazash D. Manuelian, 355 High Street, Lowell, Mass.; Herbert M. Palmer, Interboro Electric Light and Power Company, 10 East 43d Street, New York, N.Y.; Meredith F. Parker, Sutton Lane, Stelton, N.J.; Granville B. Smith, 360 East 55th Street, New York, N.Y.; Lloyd B. Van DaLinda, Gordonsville, Va. — **GRETCHEN A. PALMER**, Secretary, The Thomas School, The Wilson Road, Rowayton, Conn.

## 1919

Benjamin H. Bristol has written stating that he is with the Foxboro Company in Foxboro, Mass. He is married and has two children. He was in England last June and, of course, missed the reunion because of this trip. He sees M. B. Lee regularly, plays golf, fishes, and collects stamps for amusement. — Joseph Elliot Cannell is with the New England Telephone and Telegraph Company. He writes: "Never see any '19 men except Warren Maynard, who works in the same building. I have recently built a home in Melrose and am busy grading the back yard with shovel and wheelbarrow. I travel very little and change hobbies regularly. Am now accumulating sheets of Mr. Farley's commemorative stamps."

Bernard S. Coleman sent us a letter dated November 18: "... I have been married since 1922, have two sons, Kenneth and Roger, aged thirteen and ten, respectively. I have traveled rather extensively in connection with my work

and am still on the jump from time to time. What with the maze of public-health work in a city like New York, lecturing at hospitals, occasional radio talks (incidentally, I shall be on Station WMCA, Sunday, December 3, at 6:00 p.m. — this is an advertising plug for me), membership on a score of committees, and so on, the whirligig of affairs does keep me somewhat occupied. In weak moments I take on more responsibilities than I should, which is a sign of advancing age denoting greater responsibilities and less wisdom. I have just finished two years as president of the Maple Avenue School Parent-Teacher Association (Newark, N.J.), only to take on a district commissionership of the Robert Treat Council of the Boy Scouts of America (Newark).

"Strange as it may seem, I did find time Thursday night (November 12) to attend the smoker of the M.I.T. Club of Northern New Jersey (I live in Newark, as you know), and found only one of our Class there. I see Teddy Shedlovsky from time to time at the Rockefeller Institute for Medical Research. . . ."

With this letter came the following complete listing of events and achievements in Coleman's life: "From 1919 to 1924, chemist and bacteriologist, Montclair Water Company, Montclair, N.J.; from 1925 to 1927, industrial secretary, New Jersey Tuberculosis League, Newark, N.J.; from 1928 to 1931, executive secretary, Hudson County Tuberculosis League, Jersey City, N.J.; from 1932 to 1934, municipal relief director, state of New Jersey Emergency Relief Administration (Paterson and Passaic); from September, 1934, to date: secretary, tuberculosis committee, New York Tuberculosis and Health Association; secretary, Tuberculosis Sanatorium Conference of Metropolitan New York; secretary, clinical section on Chronic Pulmonary Diseases.

"Committees and such: chairman, advisory committee on vocational rehabilitation, National Tuberculosis Association (1937); member, advisory committee on vocational rehabilitation, National Tuberculosis Association (1928-1931) (1935-1937); chairman, Tuberculosis Section, American Hospital Association (1938 to present); secretary, tuberculosis section, American Hospital Association (1937); secretary, American committee, International Association of Thalasso-Therapists; secretary, tuberculosis committee hospital survey for New York (United Hospital Fund); member, committee on standards for the compensation of occupational diseases, American Public Health Association; secretary, section on industrial hygiene, American Public Health Association (1933-1936); licensed health officer, state of New Jersey; secretary, association of Industrial Physicians and Surgeons of Northern New Jersey; member, industrial hygiene committee, New Jersey Health and Sanitary Association; chairman, subcommittee on industrial hygiene policy for the state of New Jersey; chairman, department of physical and health education, New Jersey Federa-



## 1919 Continued

tion of Y.M. and Y.W.H.A.'s (1928-1937); lecturer on public health problems, Presbyterian Hospital, Newark, N.J.; lecturer on public health, Christ Hospital Training School, Jersey City, N.J. (1929-1933); member, executive board, Weequahic Adult School, Newark, N.J.; author, numerous articles on tuberculosis, industrial hygiene, public health, rehabilitation, and reviews of scientific books for public-health journals; member, National Conference of Tuberculosis Secretaries; fellow, American Public Health Association; member, American Association of Social Workers; member, American Public Welfare Association; and member, executive board, Public Health Association of New York City (1936, 1937)."

There is an element of news in address changes, especially when these mention business or change of title: Gordon W. Ayer is at 23 Lakewood Road, Newton Highlands, Mass., where he is owner of a yacht brokerage. — Fred P. Baker is with Baker Truck Rental, Inc., 2120 Welton Street, Denver, Colo. — Benjamin H. Bristol is at 28 Union Street, Foxboro, Mass. — Address for Lawrence B. Cahill is Hotel 79th Street, 279 Northeast 79th Street, Miami, Fla. — Francis T. Coleman has moved from Medford, Mass., to 425 Beatrice Street, Teaneck, N.J. — Myles F. Connors is an investment counsel at 233 Broadway, New York, N.Y. — George P. Gail is at 3513 North Calvert Street, Baltimore, Md. — Home address of Thomas L. Goodwin, Jr., is 3402 Parsons Boulevard, Flushing, Long Island, N.Y. — The room number of Grant D. Green, Jr., has changed to Room 607, Custom House, New York, N.Y. This is the United States Internal Revenue Service. — William J. Hagan, Jr., has moved from Chattanooga, Tenn., and can be reached through the Tennessee Valley Authority, 304 Old Post Office, Knoxville, Tenn.; his home is at 2801 Kingston Pike, Knoxville.

Edmund W. Hill's old address of Fort Humphreys, D.C., is now changed to United States Army, Bolling Field, D.C., where he is a lieutenant colonel. — Home address of James A. Howe is Parsonage Road, R.F.D. 2, Greenwich, Conn. — Max Knobel's address is 30 Charles River Road, Cambridge, Mass., which to the initiate means Arthur D. Little, Inc. — Harry L. Peach is dwelling at the Y.M.C.A., 357 Ninth Street, Brooklyn, N.Y. — Lieutenant Commander Wilson has become Commander Henry E. Wilson and is at the Norfolk Navy Yard, Portsmouth, Va.

The Secretary is mailing to fifty members of the Class each month a request for information about themselves and others in the Class. If everyone will reply, we will hear from the entire Class in the course of a year. The Secretary urges co-operation. We are all anxious to hear what the other fellows are doing; so please write. — EUGENE R. SMOLEY, Secretary, 2 Fairmount Avenue, Hastings-on-Hudson, N.Y. GEORGE W. MCCREERY, Assistant Secretary, 275 Cypress Street, Newton Centre, Mass.

## 1920

The members of the Class continue to run true to form in that they do not stay put. Here are some new addresses: Ed Brickett, from North Chelmsford to 75 Creeley Road, Belmont; Bill Freeman, 203 Cameron Street, Alexandria, Va.; E. P. Grismer, 735 Columbian Avenue, Oak Park, Ill.; Harry Kahn, 28 Schank Avenue, Matawan, N.J.; Don Kimball, 1918 Clover Street, Rochester, N.Y.; G. R. McNear, from Newton to Scarsdale, N.Y. (21 Vanderbilt Road); Johnnie Nash, 25 Rhode Island Avenue, Providence; Cliff Rathbone, also in Providence, 24 Kingston Avenue; Bill Barron, 49-12-39th Avenue, Woodside, Long Island; Ed Cousins, 613 East Market Street, Akron, Ohio; Ray Davis, back at Framingham, Mass. (605 Concord Street); Bill Dewey, Auburn, N.Y.; Ken Page, 95 State Street, Springfield, Mass.; Bob Tirrell, 223 Hopkins Road, West Haddonfield, N.J.; Fred Bowditch, 139 Davis Avenue, Brookline, Mass.

Bob Van Volkenburgh, now a lieutenant colonel, has been transferred from Newport to Fort Kamehameha, Hawaii; Phil Rust continues with Laird and Company in Wilmington, Del.; E. G. Wilson is now having his mail sent to 396 Ward Street, Newton Centre, Mass.; Charles Lawson is with the Boston office of the International Business Machines Corporation; Al Fraser is the head of Fraser Flowers, 58 Central Street, Boston; Harold Kepner is now a professor at Utah State Agricultural College, Logan, Utah. — Your Secretary regrets to report the death of Giles M. Penick of Lynchburg, Va., on August 6.

Plans for our twentieth reunion are on the drafting board, and the location has been staked out — Sheldon House, Pine Orchard, Conn.; the time has been set — May 31, June 1, and June 2. This is due notice. So if you aren't there, don't blame anybody but yourself. — HAROLD BUGBEE, Secretary, 7 Dartmouth Street, Winchester, Mass.

## 1921

With another visit to the Institute in prospect as these notes are compiled, it may be in order to offer a midwinter reminder to those who are farther from Cambridge to start planning now for the "Trek to Tech" this Alumni Day, June 3. For those who are located at great distances, this will serve as the first notification of next year's class reunion. Tentative plans for our Tremendous Twentieth have already been discussed. Your Secretaries will welcome your suggestions regarding location and program. Who will volunteer to serve on the nation-wide committee to out-Harvey Dan's two previous parties, if that is possible?

William C. Ready, I, tops the list of three members of the Class to whom congratulations and best wishes are directed as a result of their recent encounters with Eros. From the Boston *Evening Transcript*: "The engagement of Miss Helen G. Conley to Mr. William C. Ready was

announced at a luncheon at the Casino in Magnolia. Miss Conley, daughter of the late Mr. and Mrs. Matthew M. Conley of Lowell, is a former president of the League of Catholic Women, vice president of the Lowell Quota Club and treasurer of the Seton Guild. Mr. Ready is the son of Mrs. William B. Ready of Lowell. He was graduated from Technology and is now civil engineer and superintendent of construction, Quartermaster's Corps, U. S. Army Base, Boston. He is a past president of the Technology Club of the Merrimack Valley."

John S. Cummings, VI, has joined the ranks of the benedicts. Said the Boston *Herald* of July 23 last: "Miss Pearl Newton Middleton, daughter of Mrs. W. Irving Middleton of Watertown and the late Mr. Middleton, was married yesterday to Mr. John S. Cummings, son of the late Mr. and Mrs. John L. Cummings of Watertown. Mr. and Mrs. Cummings will make their home in Allentown, Pa." In this statement, John's new address is 115 Barnard Avenue, Watertown, as married.

Robert E. Waterman, X, of New York on August 5. From the *New York Herald Tribune*: "Miss Elizabeth Williams, daughter of Dr. A. T. Williams, Robert R. Williams of Summit, N.J., was married to Mr. Robert Waterman, son of Mr. Albert P. Waterman of Orange and the late Mr. Wesleyan and is a member of Alpha Xi Delta. Mr. Waterman attended Williams and was graduated from M.I.T. He is a member of Phi Sigma Kappa and is a research chemist at the Bell Laboratories in New York where he has been associated with Dr. Williams in the synthesis of vitamin B." The Watermans are making their home at Spring Valley Road, Morristown, N.J.

Word has been received of the death of George A. W. Smith, IV, at his home, 337 Huntington Avenue, Boston, a year ago. On behalf of the Class, we extend sincerest sympathy to his family.

The VI-A *News* recently published a letter from Ralph H. Gilbert, in which he says he frequently sees Pip Coffin and George Chutter, brother Hexalpha. Fish is an engineer with the New York Telephone Company, 140 West Street, New York. — Promotion to lieutenant colonel from the rank of major has been announced for Ralph G. Barrows, I, and Edgar E. Hume, VII. Barrows' home address is 458 East Fairmount Avenue, State College, Pa., and Hume can be reached at the United States Army Medical Field Service School, Carlisle, Pa.

Seen at the November smoker of the M.I.T. Club of Northern New Jersey: Max Burckett, George Chutter, Cac Clarke, Bob Crawford, Bill Emery, Fred Kowarsky, and Ralph Lockwood. Bob Crawford, a newcomer in our midst, is with the Research Corporation. For this news, our thanks to Jack Keck, the new Assistant Secretary of 1923.

Recently reported at new addresses are Albert B. Alsos, XIII, 1010 Union Street, Brunswick, Ga.; William Aronoff, X,

## 1921 Continued

199 Washington Street, Boston; A. Ilsley Bradley, II, Raymond T. Cragin and Company, 825 National City Bank Building, Cleveland, Ohio; Willis Bugbee, XV, 1002 Kensington Road, Grosse Pointe, Mich.; George A. Chutter, VI-A, 109 Central Avenue, Glen Rock, N.J.; Edward M. Craig, Jr., XI, Bradley, N.Y.; Frederick J. Curtin, I, 7524 Phillips Avenue, Chicago, Ill.; Lighton Evans, X-A, 141 Violet Street, Johnstown, Pa.; Albert E. Fowler, Jr., V, 3 Bay State Road, Pittsfield, Mass.; Harry A. Goodman, II, Equitable Life Assurance Society, 82 Devonshire Street, Boston; Morris B. Hart, X, 48 Bellevue Street, Elizabeth, N.J.; William R. Matthews, VI-A, 508 Hutton Building, Spokane, Wash.; Henry C. Nelson, V, 87 Lewiston Avenue, Willimantic, Conn.; George F. B. Owens, VI-A, Brooklyn Union Gas Company, 176 Remsen Street, Brooklyn, N.Y.; Harry M. Ramsay, XV, 6 Center Road, Towson, Md.; Harold T. Reddish, I, Fidelity Mutual Life Insurance Company, 89 Broad Street, Boston; Oscar B. Sias, I, 41 Bellevue Street, Portland, Maine; Albion R. Wood, VI-A, 177 Ridgewood Avenue, Hamden, Conn.

Before those good resolutions get lost on the bottom of the pile, send that letter now to either of the following addresses. — RAYMOND A. ST. LAURENT, *Secretary*, Rogers Paper Manufacturing Company, Manchester, Conn. CAROLE A. CLARKE, *Assistant Secretary*, International Telephone Development Company, Inc., 137 Varick Street, New York, N.Y.

## 1922

By the time these notes appear on the "newsstands," the informal dinner of the New York group will have been held. Pertinent data about it will therefore appear in the February Review.

According to the *Worcester Telegram*, Ken Merriam will have his hands full in directing the training of thirty-four Worcester Polytech students who have registered for the flying course offered by the Civil Aeronautics Authority. In addition to his keen interest in student affairs at Worcester Polytech, where he is professor of aeromechanics, Ken has a lively interest in the affairs of the Worcester County Alumni Association. He is married and has two daughters.

Bill Mueser's contributions to engineering receive recognition in the announcement sent out October 2 by the firm of Moran, Proctor and Freeman stating that the firm name has been changed to Moran, Proctor, Freeman and Mueser. The address is 420 Lexington Avenue, New York, N.Y. — Trade papers recently announced that Thomas N. Berlage has been appointed director of sales for the Corronizing division of the Standard Steel Spring Company of Coraopolis, Pa. In confirmation of this, your Secretary enjoyed a dinner at Tommy's expense at the Metals Congress held in Chicago in October. The literary-minded members of the Class will find in Tommy's experiences since 1922 sufficient material for a novel to put the best sellers to shame.

Francis Marion Banks, XIV, Vice-President of the Southern California Gas Company in Los Angeles, delivered a paper at the symposium on gas in new homes at the American Gas Association's annual convention in New York on October 10. — News comes through the Institute that P. J. Higgs, VI, is still associated with the National Physical Laboratory at Teddington, Middlesex, England, where he is engaged in research and test work in electrical engineering. He is married and has two children, a daughter of eight years and a son a year and a half.

At the recent smoker of the Northern New Jersey Tech Club, eleven of our classmates were present, namely, Coddington, Downing, Grady, MacDonald, Manshel, Munning, Nesmith, Rhodes, Teeter, Trowbridge, and Vilett. — CLAYTON D. GROVER, *Secretary*, Whitehead Metal Products Company, Inc., 303 West Tenth Street, New York, N.Y. C. YARDLEY CHITTRICK, *Assistant Secretary*, 77 Franklin Street, Boston, Mass.

## 1923

Jack Keck says he hesitates to mention it (since I accused him of bragging about the prominence of 1923 men in the M.I.T. Club of Northern New Jersey), but the November meeting of the Club had eleven '23 men present out of a total attendance of 164, a quota exceeded by only one other Class. A new face was that of Gerald A. Fitzgerald, Birdseye Laboratories, Hoboken, who lives in Mountain Lakes, N.J.

We are under obligation to Jack for several interesting letters this month, the result of his and Bob Shaw's circularization of the men in the New York metropolitan district. One is from Richard H. Longmaid, who reports that he is still single and maintains residence and publishing quarters at the Harthstone Lodge, New Rochelle. A number of enclosures describe his current activities, the one most appropriate for quoting being a clipping from the *Eastern Underwriter* of New York, June 10, 1938: "Richard H. Longmaid, who will be remembered in casualty insurance circles of New York as the United States Brokerage solicitor who wrote an interesting book, 'Adventures of Robert Ross — Insurance Solicitor,' about his experiences about town, has embarked upon a career in the field of investment research. He has just announced the creation of a new publication to be issued at regular intervals which will interpret trends of business and security prices in the light of the Dow Theory, which was originated by Charles H. Dow, founder, Dow-Jones & Co., and the Wall Street Journal.

"Mr. Longmaid, who retired two years ago from business in New York City after fourteen years' experience in the insurance and mortgage fields, has made an extensive study of the Dow Theory and has developed an interpretive service for investors based on this tested theory. A graduate of the Massachusetts Institute of Technology, Mr. Longmaid started in

1922 with the Compensation Insurance Rating Board, then entered the company ranks as a casualty underwriter. After some years with the United States Casualty he resigned in 1933 to enter the guaranteed mortgage field with the Swiss Reinsurance Group. For two years he managed its central mortgage bureau and resigned in 1935 to join the Bond and Mortgage Guarantee Corp."

Ernest E. Fairbanks writes Jack from 121-43 Sixth Avenue, College Point, Long Island, N.Y.: "Recently I purchased an extensive stock of scientific books, many of which could not be obtained anywhere — only five copies in one case. Several M.I.T. men have been trying to get some of these extremely scarce items for years and finally found them in this lot. In other words have bought up an extensive science library — physics, geology, and so on, and have been disposing of same just as rapidly as possible by offering them at prices that no one who is interested can refuse. The writer was seriously ill all of last winter and was obliged to break up his collection of Western Americana. From this he became a bookseller."

Harry J. Paletz of the State Board of Public Utility Commissioners, Newark, and living at 6 Hoffman Street, Maplewood, N.J., writes Jack: "The only news I have about myself is that I was elected president of the Rensselaer Polytechnic Institute Alumni Association of Northern New Jersey; also I attended the national convention of the Military Order of the World War at Roanoke, Va., as a delegate from the New York chapter. Mrs. Paletz accompanied me to the convention." — Walter E. Ditmars reports that during the past year he was elected president of Gray Manufacturing Company, Hartford, Conn. For many years that company has manufactured coin-telephone equipment. With his letter Ditmars sent me a bulletin describing a new sound-recording machine the company is promoting, called the Audograph. A distinctive feature is that the recording is done on transparent acetate disks, 0.005 inch in thickness, which may be mailed or filed like letters. A page in *Electronics* magazine for October describes other features of the machine which would be of interest to experts in the field but which there is no space here to describe adequately.

William T. Roth reports from the New York office of the Chatham Manufacturing Company, 57 Worth Street, that he hasn't anything of importance to offer. "Not that it is an unexciting job I am at," he writes, "as you will understand if you try to get China cotton and Australian wool for blankets. I am still credit manager in the company and find little use for my chemical engineering knowledge." — Lisle J. Maxon reports that for the last two years he has been stationed at the Naval Aircraft Factory, Philadelphia Navy Yard. Prior to that he was at Pearl Harbor, Hawaii. — Jack Zimmerman reports from the Carbide and Carbon Building, New York City, that around the first of the year he was moved



## 1923 Continued

from the engineering development laboratories of Linde Air Products Company at Newark, of which he had charge, to the headquarters of their gas group development department in New York. More recently he has been given charge of that same work in the New York office. He reminds me he has three boys.

*Time* magazine, reporting the meeting of the American Chemical Society in Boston, presented the following as a high light of the meeting: "Belgian-born Dr. George Calingaert (pronounced *Kale-ingert*) of Ethyl Gasoline Corp. turned up with a discovery which sounded abstruse to laymen, but which his colleagues hailed as 'fundamental' and 'revolutionary.' The discovery: that certain closely related organic compounds will react with one another (*i.e.*, form new compounds) when nudged by simple catalysts (chemical activators) at ordinary temperatures. Up to now chemists have regarded such compounds as indifferent to one another, capable at best of being shotgunned into chemical matrimony by violent stimulants, high temperatures and great pressures. These strongarm methods, even when successful, are wasteful. In the Calingaert process the new molecules slide together without fuss. 'The new reaction' said Dr. Calingaert, 'all but shakes the foundations of our general concepts of the behavior of atoms in molecules.'

"When Dr. Calingaert mixed two anti-knock fuel ingredients, tetraethyl lead and diethyldimethyl lead, and gave them a catalytic nudge, atoms came loose from the molecules and formed new compounds at random — in quantities predictable by the laws of chance. For this reason, popularized versions of the Calingaert research referred to it as a chemical 'dice game' or 'poker game.' Actually, since he deals with trillions of molecules in one operation, the chemist always knows what sort of hand he will draw. Chemist Calingaert predicted that U. S. industry would lose little time applying his discovery to a variety of chemical short-cuts."

The Advisory Council on Athletics is renewing, after a lapse of two years, its customary requests to the Classes for contributions to the modest Alumni Athletic Fund. To this fund our Class has made a contribution of about fifty dollars in some years. The Class has one of the five members of the Council in the person of Bob Hendrie. I know Bob would want me to make as strong an appeal as possible for whatever support the Class can give. Is there some one member of the Class who will send to me, or to Bob, fifty dollars (or any fraction of it) for this purpose? — And that leaves just room for the compliments of the season. — HORATIO L. BOND, *Secretary*, 457 Washington Street, Braintree, Mass. JOHN M. KECK, *Assistant Secretary*, 441 Mount Prospect Avenue, Newark, N.J.

## 1924

A recent issue of the *Mining Journal* says that Atherton B. Weston, formerly mine superintendent of the Cardinal Gold

Mining Company at Bishop, Calif., is now working in the same capacity at that company's mine in the Platoro district near Monte Vista. His address is Box 551, Monte Vista. — Avery Ashdown, master of the Graduate House, was a speaker on organic chemistry at a recent meeting of the New England Association of Chemistry Teachers. — Howard Lewis reports that he has just invented and marketed a new game of power politics called "Dictator." — Chick Kane says that Ingram Lee was in Boston during the summer, and that he has forsaken his work as superintendent of a Dallas textile mill to take over a large insurance agency.

Bill deKoch, still a bachelor, is a consulting engineer on petroleum geology, located at the Petroleum Security Building in Los Angeles. — Harrison White, in addition to a consulting practice, is commanding officer of the twelfth division, United States Naval Reserve. — Campbell Ross, still with Dewey and Almy in Cambridge, reports the birth of a son, Bradley, last May. — Ruben H. Klainer is an attorney at law, having been to Boston University Law School for his bachelor's degree in 1931 and his master's in 1935. He has two sons: Stanley Melvin and Albert S. — FRANCIS A. BARRETT, *General Secretary*, 50 Oliver Street, Boston, Mass.

## 1925

One of the biggest thrills for a Class Secretary is to meet, quite by accident, a long-lost member of the Class. A number of years ago, while I was Course XIV Secretary, I met Steve Zavoico in the Bethlehem plant restaurant of the Bethlehem Steel Company. A few days ago, while going through the mail order warehouse of Sears, Roebuck in Boston, I found Willard Gardiner. I had thought that I was one of the first of the Class to marry after graduation, but found that Willard had beaten me to it, having married Madelyn Keene early in 1926. He told me that he had spent the first few years after leaving school in inventory and control work with the American Optical Company at their plant in Southbridge, Mass. Since 1936 he has been with Sears. His work now is in motion and time study, which Sears uses to as great an extent as any manufacturing concern. He lives at 324 Franklin Street, Cambridge.

Francis McGinnis dropped in to see me at the office recently. On an auto trip which he made to the Pacific Coast this summer, he looked up Frank O'Neil in Chicago and Frank McLaren in San Francisco. He reports that the latter and his wife have a bouncing boy, now something over a year old. Others with whom he has been in touch are Bill Carroll, VI, who is with the Westinghouse Electric International Company in New York City; Eddie Eager, who is in Wilmington, Del., with Sears; Avery Stanton, with Mason-Neilan, in Hyde Park, Mass.; and Charlie Giblin, who is with Cities Service in Harrisburg, Pa. Mac himself has been with Claude Neon, and from 1936 to

early this year was a sales engineer with Barkon-Frink in New York. He mentions having seen Alec Rokicki in Buffalo and suggests that any of us who happen to be passing through that city get in touch with him. His address is 31 Arundel Road.

From The Review Office comes the following clipping: "At the hydraulics conference at Iowa City, held under the auspices of the civil engineering division of the Society for the Promotion of Engineering Education and the Iowa Institute of Hydraulic Research, Kenneth C. Reynolds delivered a paper describing 'dimensional analysis . . . as primarily a guide in planning a concise experimental program and in analyzing and correlating the observed data.'" — Reading in The Review that Jack Ratcliff, one of our class members who transferred to another school (West Virginia University) had written a book, *Modern Miracle Men*, I wrote to him and received a letter in reply, the latter part of which I quote: "A general collapse of the mining industry more or less sealed a wish to write. So I went along to New York, got a job with the United Press and have been at it ever since."

"I've been on the editorial staffs of *Time*, *Newsweek*, and *Fortune*. I left *Fortune* almost two years ago to start free-lancing. Most of my work is done for *Collier's*, *McCall's*, *Reader's Digest*, and *This Week*. Also, there is the new book, *Modern Miracle Men*, which Dodd Mead just published. It deals principally with the latest work in medical research. I've been in Boston only twice since leaving Tech, once to see Dr. Compton and the other time to write a story on the Harvard fatigue laboratory. I'm married, have two children, and live at Sneed's Landing, N.Y."

For some time my only information concerning Frank Klein, XIV, had been a series of address changes received through routine channels. Then in November, I wrote him, charging that he was apparently trying to establish a record for the frequency and long distance of his removals (Hawaii to San Francisco to Washington and, at last, to Baltimore, Md.). In reply I received this prompt letter: "It was a pleasure to hear from you, although after the reminder of reading over the last Review, I had hopes of conscientiously advising you as to my doings before forcing you to send a letter of inquiry. In connection with your crack about my frequent change of address, I'd like to bring to your attention the fact that about every time you write to me, you have a different address yourself. . . . My frequent moves have an unfortunate explanation. I got sick after a year in Hawaii, so was transferred to Letterman General Hospital in San Francisco last October (1938). At my wife's request, I was transferred to Walter Reed General Hospital in Washington, D.C., in January, so that we'd be nearer our families. I recovered completely in March, but nevertheless was retired from the Air Corps for physical disability. While possibly the doctors thought I should enjoy

a life of leisure around a beach, I felt too well and ambitious to do this, so accepted a position as assistant chief of laboratories at the Glenn L. Martin Company, after driving my family on a long trip to California and various national parks. I am now hard at work and enjoying it immensely. I frequently see old friends from the Air Corps and aircraft and oil companies, who come here on business, so the work doesn't seem very different from what I did at Wright Field, where I was in charge of fuel and oil testing and development. . . . Our house will be finished about December 15, and we shall be delighted to have any of our M.I.T. friends visit us when they are in this neighborhood. There are quite a few M.I.T. men at the Glenn L. Martin Company. . . . You are considerably ahead of me as regards children. I still have just the two: Beverly, aged nine and one half, and Eleanor, aged five. . . ."

Upon receiving this letter, I wrote for further details about the "quite a few M.I.T. men" at the Martin Company. Frank promptly replied with the following: "About the other M.I.T. men here, I intended to say in my last letter that I was surprised to run into Roger Ward, who played in the Tech Show orchestra with me, as a very fine, but noisy, cornet or trumpet player. He worked here for a while but now is assistant to the vice-president of manufacturing. . . . Incidentally, Roger has demonstrated his versatility by designing his own home without the help of an architect; he's now living in it with his wife and son, and it really is *some house!*"

From the University of Michigan news service comes a release in part as follows: "Scientists, research men, and technicians from the laboratories of the great industrial corporations, governmental bureaus, research foundations, and leading national technical schools will gather at Ann Arbor, Mich., November 1, for the 'University of Michigan-Life Conference on New Technologies in Transportation.' . . ." Bracketed with the names of a number of well-known engineers and research chiefs was Richard M. Wick, research engineer, Bethlehem Steel Company. Checking back, we find that Dick was with the National Bureau of Standards at Washington, D.C. (his home town), and the Naval Aircraft factory at Philadelphia, Pa., before joining the Bethlehem organization. His address is Bethlehem Steel Company, research development department, Bethlehem, Pa.

It was with regret that we received notices of three more deaths in our Class: Yoshio Ogawa, II, who was connected with Nissan Jidosha Hambai Kaisha, Ltd., in Tokyo, Japan, died on June 11 of this year; Russell D. White, a nonassociate member, died March 8 in Glendale, Calif.; two years ago, on October 1, 1937, Francis K. Anderson, who was then living in Somerset, Mass., passed away. He was a graduate of Course I and lived in Fall River while at the Institute. We would appreciate it very much if other Tech men reading these notes would write us, giving par-

ticulars of the careers of these and other members of the Class who have died in the years since our graduation. — HOLLIS F. WARE, *General Secretary*, 3 Aquavia Road, Medford, Mass. F. LEROY FOSTER, *Assistant Secretary*, Room 6-202, M.I.T., Cambridge, Mass.

## 1926

The address-change slips which emanate from the Register of Former Students supply most of the news budget this month. What substantial achievement, what human interest might lie behind each of these impersonal address slips provide interesting speculation. Were the information available it would most assuredly enliven this adversaria. About all the Secretary can do is to serve as a Geiger counter to record these random cosmic rays without knowing what they signify beyond the mere fact that they have traveled. Let me check off a few.

As an interesting case in point, Dorothy Quiggle, whose address is Pennsylvania State College, has had the title professor prefixed to her name. What is Professor Quiggle professor of? What has been her career since she braved the rigorous masculine climate of the Institute? — Killian Van R. Lansingh recently moved from Los Angeles to Santa Barbara, Calif., where he is publisher of *Radio, Ltd.* — Gordon F. Tracy has moved from Toronto to Madison, Wis., where he is professor at the University of Wisconsin. — Harry J. Jenkins late of Hyde Park, Mass., now resides in Lewisburg, Pa. — Tzu H. Chou has recently been in touch with the Institute from his office in the National Commercial Bank Building in Shanghai, China. — Abram C. Hammatt has left Washington and now lives in Hartford, Conn., where he is with Pratt and Whitney Aircraft.

Not long ago we had a pleasant note from Louis Berube of Sainte-Anne de la Pocatière, Canada. He reports that he has been director of technology, College of Fisheries, Laval University (1938) and director of Quebec United Fishermen in 1939. Last May he was married to Mlle Therese Jean.

While in Washington recently the Secretary had the pleasure of seeing Thornton W. Owen, whom we once knew affectionately as Moony. Thornton has become one of Washington's distinguished citizens, businesswise. He has been elected director of one of the city's important banks and he is active in the real estate business in which his family has been engaged for the past fifty years. Thornton and the Secretary ventured for themselves a few reminiscences of the days when they were joint conspirators on *The Tech* and when Thornton carried a triweekly worried look on his face wondering what the Secretary would break out with the next morning in the editorial columns. Members of the 1926 *Voo Doo* staff doubtless have similar pleasant memories and in particular of the frenzied efforts made by each publication to annoy the other. — J. RHYNE KILLIAN, JR., *General Secretary*, Room 3-208, M.I.T., Cambridge, Mass.

## 1929

These notes will be read after the holidays are over, but your Secretary takes this opportunity to wish you all the happiest and most prosperous of new years. — The Alumni Office informs us that Bill Tarbox, II, who is now with Bethlehem Shipbuilding Corporation of Quincy, Mass., lectured on "Marine Engineering" for the Society of American Shipbuilders and Designers last winter in Quincy. — The *Engineering News-Record* of June 22 carries in its story on the civil engineering division meeting of the Society for the Promotion of Engineering Education, held in Iowa City, Iowa, the report that Hunter Rouse, I, delivered a paper on the "Criteria for Similarity in the Transportation of Sediment." The conference was on hydraulics and was also under the auspices of the Iowa Institute of Hydraulics Research.

News reports early in October indicated that B. Clark Boeckeler, who was with us as a graduate student in X-A, was seriously injured in an automobile accident in Puerto Rico. It was reported that he had suffered a possible skull fracture, fracture of both legs, and severe cuts on the face. There has been no subsequent report on his condition, and we can only hope that his injuries were not so serious as originally reported.

It might turn out to be a real help to your Secretary if more of you would fill in the new blanks sent out by the Alumni Association. Several of the boys have already done so: Harry C. Weare, I, reports that his present address is 490 Main Street, South Weymouth, Mass., and that he is in the employ of James Stewart and Company of New York City as civil engineer on the Procter and Gamble plant job in Quincy. Harry states also that he has been with building and heavy construction projects since graduation. His son is now seven years old. Harry says that Steam Harrison, I, was his neighbor in Ware, Mass., for five years and is still with the Metropolitan District Water Supply.

Thomas W. McCue, XV, reports that he is at present a patient at the Worcester State Hospital, Box 57, Worcester, Mass., and has been there since June, 1937. He says that he saw Bill McLean, VI, in New York in the fall of 1935 and that the latter mentioned working for a telephone company he thinks. Thomas is unable to locate Nicholas Easley, IX-B, and the last he heard of Robert Orrill was in 1930 when the latter was working for a chemical company.

Anthony Standen, who was a graduate student with 1929, writes that he has been with Imperial Chemical Industries in England since 1930 and that he has now left them to come to America with his wife and small child. He is looking for a research position in the American chemical industry and his address is 244 South 3d Street, Philadelphia, Pa. — Arnold Conti, IV-A, reports that he is a partner in the firm of Conti and Donahue, engineers and contractors of Lynn, Mass. At present they are engaged in developing



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the "Copper Beeches," exclusive homesites in Nahant, Mass. Arnold says he is still single and expects to stay so in spite of the war. — George D. Shaver, XV, writes that he has been industrial power engineer for Northern Indiana Public Service since May, 1936, and that he does occasional consulting work for the rock-wool industry. — EARL W. GLEN, *General Secretary*, Box 178, Fairlawn, Ohio.

### 1930

Our Class was well represented at the wedding of Ted Riehl, X, to Miss Margaret Walker Wade of New York City on October 28. Three 1930 men ushered: Phil Holt, X, Ralph Rowzee, X, and Bill Jackson, XV. The Riehls are making their home in Akron, where Ted is working with Goodyear. Jack Schroeter, IX, has returned from the West Coast and is located at the North Beach Airport of Pan American Airways in Jackson Heights, N.Y.

Two of our classmates have recently been advanced academically: Ina Granara, V, to an assistant professorship at Simmons College, and Ray Binder, II, to a professorship at Purdue. — The October issue of *Electrical Manufacturing* contains an excellent paper by Scotty Scott, VI-A, which won for him the prize awarded for the best design paper of the year. Scotty is an electrical engineer with General Radio in Cambridge and has been outstanding in his support of alumni affairs.

While the war is helping to keep Jack Bennett, II, busy in far-off Australia, I am sure that our Class President joins me in extending to the Class the best wishes of the season and that he'll do his very best to gather with us next June at our ten-year reunion. Now is the time to mark the dates of June 1 and 2 on that new 1940 calendar of yours! — PARKER H. STARRATT, *General Secretary*, Bradley Park Drive, Hingham, Mass.

### 1931

It was hoped that by now we would have received certain comments from the Class of '31 readers of *The Review* relative to the absence of news in our class notes columns. No comments have been received, however, which probably is an indication that these monthly notes weren't missed at all. At any rate we are now back on the firing line and any news sent in to swell these depleted columns will be most welcome.

Carl Baker has been appointed assistant chief engineer at the Hamilton Standard Propeller division of Pratt and Whitney. After graduating from Tech, Carl attended the Air Corps Flying School at San Antonio, Texas, and then saw some active service with the Air Corps in Panama. In 1933 he entered the employ of Pratt and Whitney Aircraft.

From Everett C. Hayden we have a note that he is now constructing quarter-master in charge of construction of a future home for the general headquarters of the Air Force. This project amounts to \$7,500,000. — An award from the Milton Fund at Harvard — for conducting re-

search or preparing publications — has been granted to Robert W. Vose, instructor in applied mechanics, for a study of the aeolotropy of elasticity accompanying shear strain. — United States Patent No. 2,156,914 on increasing the resistance of alloy steels to corrosion has been granted to Robert S. Williams '02, John Wulff, staff member, and Albert L. Kaye.

The announcement has been made of the marriage of Miss Pauline Sherman to John T. Sherman at Roslyn, Long Island. Mr. Sherman is with the American Cyanamid Company. — Miss Sally Ryder was married to Daniel Addison Cook in Belmont. — From Chicago we read of the marriage of Miss Antoinette Gudaitis to Joseph J. Alkazin. Joe is now superintendent of the commissary of the American Airlines. — BENJAMIN W. STEVERMAN, *General Secretary*, 11 Glenland Road, Chestnut Hill, Mass.

### 1933

Just a few bits of news this month: the first, an announcement from Mr. and Mrs. Richard L. Fossett, Jr., that Richard, 3d, arrived on November 18. Your Assistant Secretary announces the birth of Helen Elizabeth on November 26, the fourth addition to the Kimball family. The division is now two boys and two girls, a goal for other '33 aspirants for the Perfect Family title. Needless to say, most of the Assistant Secretary's spare time is spent in settling minor disputes in the back yard. His office at the Institute is always open to the '33 men who happen to be in Cambridge.

Two engagements have also been announced: that of Miss Catherine E. Recknagel of Brooklyn to George H. Ropes of Detroit, who expect to be married this month; and of Charlotte G. Owens to Donald Clark Converse of Braintree, Mass. A note from Eikichi Takeda informs us of his professorship at Kobe Technical College. — At the New England Association of Chemistry Teachers' summer conference at the University of Vermont in Burlington, Morris Cohen led a discussion on the "Teaching of Metals and Metallurgy." — GEORGE HENNING, JR., *General Secretary*, Belmont Smelting and Refining Works, Inc., 330 Belmont Avenue, Brooklyn, N.Y. ROBERT M. KIMBALL, *Assistant Secretary*, Room 3-102, M.I.T., Cambridge, Mass.

### 1934

I was out in Rochester not long ago and ran into Bill Ball and Lois. Bill is still working with Ethyl Corporation as technical director of their motor clinic. At present they are located in Rochester but are moving to Buffalo soon to spend the rest of the winter. Bill took me through the clinic and gave me a great many interesting pointers about the operation of motors with various grades of gasoline. The visit was both interesting and instructive, and if any of you get the chance to go through one of these clinics, I highly recommend your doing so.

Here is a much appreciated letter from Walter McCutcheon, which should be an example for all of you fellows: "I have

always read your plea for letters in *The Review* with a certain feeling of sorrow for the poor Secretary. . . . I have also always thought that some day I'd have pity on you and let you know what was happening to one classmate, but nothing seemed to be worth the bother of writing. Now times have changed: On May 10 I got me engaged to Carlotta Hoffman of Wyncote, Pa. Miss Hoffman is a graduate of Oberlin, 1935, and has been teaching music to kids pretty well all over Montgomery County. So we got married on October 7 at the Schwenkfelder Meeting House in Salford, Pa. This meetinghouse was built about 1830, and except for the improved techniques in white-paint manufacture is practically unchanged. For some reason, which no one can understand, this was the first wedding to take place there in a generation. The complete lack of musical facilities made a string quartet a good idea. . . . We had an outdoor reception. . . . The women said it was 'beautiful.' We honeymooned through the mountains of Virginia. On the day I got back from the honeymoon, I dropped my old job as assistant chief chemist of Philadelphia Coke Company and went to work for Koppers Company as research engineer. Don't blame me for not writing before. I didn't have any news." — Many thanks, Walter, and our heartiest congratulations.

A note from Donald Russell would indicate that he had made good use of his time since graduation. Here is a list of his activities: Industrial and architectural designer with Norman Bel Geddes, New York City, 1933-1935; industrial-architectural designer with Alfons Bach, New York City, 1935-1936; free-lance illustration, oil painting, short stories; in charge of design department of Steuben Glass, Inc., a division of Corning Glass Works, since 1936; European tour for Steuben, as result of design competition, 1937; listed in "Who's Who," 1938; industrial and interior designer with Raymond Loewy, 1939. — Another note from Ruth MacFarland states that she is living in Springfield, Mass., where her husband works for Westinghouse. In the past five years the MacFarlands have lived also in Ohio and Pennsylvania.

Tom Donlan is a member of the educational committee of the Society of American Shipbuilders and Designers in Quincy, Mass. — Edward Fleming delivered a lecture on "Stress and Strain in Ships" for that society last winter. — On October 15, Bill Main was married to Miss Barbara Wilcox, daughter of Mr. and Mrs. Ralph B. Wilcox of White Plains, N.Y. The couple will make their home in White Plains. — Rex Murdock, whose engagement to Miss Elizabeth Emery was recently announced, was married on October 28 in Needham, Mass. They are living in Grafton. — October 14 marked the wedding of John Hitchcock to Miss Doris Gilbert, daughter of Mr. and Mrs. Royce Wheeler Gilbert of Chestnut Hill. After a short wedding trip Mr. and Mrs. Hitchcock planned to live in Framingham. — JOHN G. CALLAN, Jr., *General*

1934 Continued

Secretary, 184 Ames Street, Sharon, Mass.  
 ROBERT C. BECKER, Assistant Secretary,  
 Chile Copper Company, Chuquicamata,  
 Chile, S.A.

## 1935

Here we are again with the usual crop of marriages, starting with Charlie Taylor, 2d, who took Jean Heyward of Wilmington as his bride on October 21. Charlie has been selling for Riegel Textile Corporation for over a year. Alex Frank will marry Louise Rosenbaum in the near future. Alex is employed by Krasilovsky Industrial Contractors, Inc., in New York City, laying out industrial plants. Miss Edith Potter Morgan of Cedar Grove, N.J., will become Mrs. Oliver Meixell. Meixell was a graduate student in our Class. The engagement of Joe Dow and Anne Gallagher of Newton, Mass., has been announced.

Jack Holley is now the father of three girls and two boys, which undoubtedly is the class record so far. Of course Jack had a head start on some of you fellows. The gist of Jack's letter was that many children is a fine thing, especially for college graduates. Idea behind the latter is that the offspring of Tech men ought to be world-beaters.

Herb Solibakke has been transferred to the Navy Yard, Pearl Harbor, Territory of Hawaii, as associate naval architect in charge of the hull technical department. Herb has two future engineers to his credit. John Cort has been promoted by the Garco Products, Inc., to the position of chemical engineer superintendent of their plant in Ford City, Pa. Karl Stiefel, who was an exchange student in our Class, having an E.E. degree in Zurich, has received his D.Sc. from the Worcester Polytechnic Institute. The *Journal* of that institute, which reported the news about Karl, also included a few of Karl's comments on events in Europe. He believes that economically war was inevitable and that the only alternative would have been depression. Unemployment at present is almost nonexistent in Europe, with all countries running munitions plants at top speed; even Switzerland is arming. — One of our rare coeds, Alice H. Miller, has been appointed director of public health of the Tuberculosis Institute of Chicago and Cook County. Prior to her appointment Alice taught health courses at the University of Florida.

For three years Jim Casale was employed by the Oriental Consolidated Mining Company, Korea, in a large gold-mining operation which has been carried on for over forty years under English and American control. This famous gold producer recently passed into the hands of Japanese interests, and as a result Mr. Casale is back home at 2 Mason Street, Salem, Mass. About a year ago Jim was married to a gal he met in Salt Lake City, Utah, when he was working for the Utah Copper Company. The bride traveled to Japan, where they were married.

Charles Allen has been transferred by the ordnance department of the United States Army, to Fort Devens, Mass. George Garton has been transferred to

Fort Benjamin Harrison, Ind. Rush B. Lincoln, Jr., is now at West Point in the department of civil and military engineering. Jack Rodgers has joined the Stromberg Carlson Telephone Manufacturing Corporation in Rochester, N.Y. Howard Tatel is now at the University of Michigan in Ann Arbor.

Now we draw a deep breath and continue with the letters which space forced us to omit from the last issue. You remember, we had started a round robin. The next tale is that of Paul Germond: "After a short vacation with the naval air force, breaking shock-absorber cords, wing skids, and the instructor's nerves, flying their NY-2's, I found the civilian life more promising. Since that time I have been with the Revolver Company, making nearly anything the public wants. Ordinarily our line consists of portable elevators, stationary elevators, lift trucks, and storage racks, but the trend has been toward specials, so that we don't know quite where we are at. For example, at the present time I am mixed up in a high-speed passenger elevator and a revolving exhibit for the World's Fair. Between these extremes there are numerous problems concerning the automatic vertical and/or horizontal handling of various-sized articles ranging from cigarettes to the big Wrights for the new clippers. As before, I go back to nature at my home in Connecticut every week end during the summer. When not just taking it easy, I am trying to make a swimming pool. The only difficulty is that every winter a lot of dirt falls back into the hole; so I spend about a month at the beginning of each summer just digging it out. By this time it is too late to start concreting, and we therefore just let the water run in and wallow in the mud. Actually it is not so bad as that, for the hole is about seven feet deep and a lot of swimming can be done before it is really muddy. If you don't believe it, stop in sometime. Can't quite see marriage yet. . . . Howard Prestwich of filter-paper fame was married last January in Burlington, Vt. He is assistant manager of the local bobbin factory. Darwin Stolzenbach wrote from Boston that he was working temporarily for Lever Brothers. Darwin had some tough luck last year and was laid up for several months after a serious operation."

Gary Garaventa is our next contributor: "For the benefit of those who have had no news of me, I'll start at the bottom. After leaving Tech I was employed by the Hamilton Standard Propeller Company of East Hartford as a grease monkey in one of their experimental test houses. After two months of painting walls, washing floors, and crawling over hot, oily engines to inspect running propellers on test, I was asked if I would like to work in the design department. Full of pep, vim, and vinegar, I tossed my overalls aside and walked into the design department ready to show Hamilton Standard how their propellers should be designed. Much to my chagrin I was handed an inking pen and some cloth and told to trace. After months of this (it seemed like years) I was given some de-

tailoring to do, and from this I passed to elementary design problems. In about a year I was made assistant to the chief blade engineer who taught me how to design and stress propeller blades. I spent a little over a year with him and in the course of this time helped him write a book entitled "Aircraft Propeller Handbook," which is now on the market, sold by Ronald Press (*adv.*). The only recompense I got out of this work was having my name in the preface and a free copy. In September of 1937 I was promoted to the official capacity of project engineer and am in charge of development of the largest hollow-steel propeller blade ever built. I spent the first six months designing it and figuring out a way to build it. When the design was completed, I traveled around the eastern and middle western states trying to find companies that would co-operate with us to build such a blade. We have no equipment large enough here; so all the work has to be done in other companies. After finally getting all the concerns lined up, I had one in Pittsburgh, one in Cincinnati, one in Canton, one in Warren, and one in Philadelphia. Since then most of my time is spent hopping from one place to the other inspecting and supervising the work as it goes along. Weather permitting, all my traveling is done by air, and I have now covered about 8,000 miles. It is a grand way to travel and has the trains beaten a mile. I have just returned from a month's stay in Canton, Ohio, and will return there. The development of this blade is a wonderful education and I have certainly learned plenty. I wouldn't swap my job for anything. I'm still listed among the bachelors and believe that I am going to remain there. Somehow I like the part of playing wolf. Accidentally ran into Milt Brooks in Washington a year ago. He was down there on his honeymoon, and I was the first friend he met since he got married. I met Stocky in Boston on his wedding day. It was 11:00 A.M., and he was to be married in the afternoon. To quote his last words: 'I have to get shaved now and get married, if I find time.' Just like Stocky."

From here we turn to: "Hello, gang — *comment ça va?* Frank R. Trifari, VI, reporting. For the past three years I have been associated with the Sprague Specialties Company of North Adams, Mass., manufacturers of the world's finest electrical condensers (that is, if none of you boys is working for a competitor; if you are, then we should get together on this moot question). We manufacture condensers of all kinds except the variable type used for radio receivers. I have a nice shiny desk in their laboratory. . . . and it's my business to find out, be informed of, and keep tabs on, all the latest developments of the company. I never thought a few years back in my youth (?) that there could be so many angles to a lowly condenser that I had so unceremoniously soldered into a radio circuit. After fully absorbing all the details associated with the new developments, it is part of my work to present this new development in the form of a patent application. Nor does my work in



1935 Continued

this connection end at this point, for all subsequent prosecution of the application is in my hands. The work is very interesting chiefly when it comes to matching wits with the patent office. It has other very interesting features, too, such as occasional visits to New York. Although I don't seem to travel about the globe to the same extent as some of my compatriots, I did manage to get down to Washington. The fly in the ointment was that I did not get a chance to see those cherry blossoms everyone was talking about. B' Gorra, I'm well on my way to becoming a full-fledged patent attorney. The associations in this neck of the woods are more than I had expected. We have four Tech men working for the company; seems to me that everywhere one goes, those apes are about. As some of you already know, I betook myself a wife and am now enjoying, what has been tritely defined by poet and ape alike, connubial bliss. She's the gal I brung wid me to the brawls at school. Figured there was not much sense to ending things at graduation, so here we are. We have a house up here and an amateur radio station (call letters W1LFT — left-foot telegraphist!)."

The next raconteur is: "Lewis B. Simon — Stoopid to you lugs. (Say, how did I get *that* nickname? All right, all right, you don't have to answer.) Well, as you know, after release way back when, I climbed aboard an unstreamliner (and I'm glad it was, for I was well crammed with streamlines by then) and let it ride out here to Detroit. I hit General Motors, all set to revolutionize the appearance of the American vehicular traffic. Was I ever stopped! However, I am still working at this joint, having had a crack at almost every crate G.M. uses to entice perfectly decent citizens from their folding stuff. Have now gone nuts in the Chevy, La Salle, and Olds studios in order. Recently I was transferred to the special projects studio where I worked on a job for export, and then to the export room where I worked on a special project. Which will just give you an idea of what I mean. First of May, I was put in the truck and bus room, which transfer will, I think, be a swell opportunity. You see, not much has been done to improve the appearance of trucks, and there is lots more latitude for design. By the way, some of you might like to get an idea of what we do here to pass the time. Whenever I tell people what I make believe I'm doing for a so-called living, they say: 'Oh, you design bodies, huh?' You might have that impression; therefore I'll inform you that on passenger cars, bodies are always kept for at least two years, so you can see it is not much of a problem. Aside from the fact that we don't have to get out a new one each year, bodies are not so tough to design. It's the front ends that get us gibbering in our beer. And don't you think that's tough? All a guy has to do is to think of one front-end idea a year which is good enough to be accepted, and the lad can snare himself about \$500 a month without an argument. I was trying to sink this through the skull

of a tool-and-die man I met in a beer garden, and he said: 'I can think of lots of ideas for front ends.' So I whipped out a pencil and paper and said: 'Let's have one.' All his ideas disappeared.

"Well, to sum up: Several thousand silly things have a pretty definite bearing on the accepted design, ranging from the fact that it is getting pretty hard to chisel any more pennies from unimportant stuff like engines to spend on chrome plating, to what some executive had for breakfast. And if you don't think they chisel from the engine, remember when Buick had a Stromberg carburetor? Now they have a Carter like Chevy and the rest of the *Klunkers*. That is why some of us (a minority) tear our hair. Just today, my boss counted up all the designers he'd had in his room: sixteen in three years! Without dusting off the slipstick, I make this an average of about two and a quarter months a guy. Nice place to work! The joint is air conditioned, but with the swish of stooges being hired and fired, it would keep pretty cool anyway. In my spare time I got hooked up with the *National Auto Racing News*, complete with press photographer's card and flash bulbs. It does not mean much but sure makes life hectic. For example, on a Saturday I drove down to Indianapolis for the qualifying runs, Sunday went to Toledo for midget races, Thursday to the opening of the midget track there, Sunday up to Jackson, Mich., for big cars, and then back to Toledo again. Incidentally, on the way back I got nabbed for 74 miles per hour in a 50-mile-per-hour zone. A couple of guys were with me. You might have heard of them — one was George Witzman, who pushed a midget car every way it shouldn't go (see back issue of *Pic*), and the other was Spindizzy Ellis, ex-driver who does announcing now. We put up an argument and were cooled off for drunk and disorderly — some fun. Love-life department — sorta been neglected since I got into the racing racket — no time. Gotta make a readjustment quick. When in Detroit call me at the G.M. styling section."

Announcer: "Mooring takes to the typewriter." Audience: "Nuts! Bet he can't typewrite." Announcer: "Why should he, he works for the telephone company?" So begins John Mooring's contribution, which continues: "Occupations: Left the Institute in September '35 after spending some wasted time trying to prepare to write a thesis on the use of the Telephone Company's coaxial cable for the transmission of television signals. Got all worked up about it only to find that the necessary data on its characteristics were not available. Having done little on a thesis since, I believe that I have one misdistinction: . . . I'm one who hasn't a degree to show for four years of hard labor. If and when I get it done (thesis) the bachelors and masters will come this way. Haven't decided whether to take a leave of absence from the telephone company or to marry a stenographer and spend the first few years of married life writing on some dull subject. (Those who should know say

that one likes to get away from the rest of the world during the first year.) I left Cambridge without a prospect, but with one good opportunity. Ovid Eshbach, the Bell System contact man at the Institute — one swell fellow — was supervising and editing *Handbook of Engineering Fundamentals* for the Wiley handbook series. He suggested that I work on the book for him as a sort of subeditor, proofreader, and general checker of stuff and stuff. It paid enough to keep me going and gave me the free time necessary to go job hunting. It had two other definite advantages: I had a four-month cram course on everything in the book, which everything an engineer should have at his fingertips (*adv.*) and put me in a position to be on the spot if anything opened up in the Bell System. (Gary please note: I did not get my name in the preface.)

"The opening in the Bell System came in January, 1936, and I started in a little section of the statistical division of American Telephone and Telegraph, known as the public relations measurement subsection. I've been there ever since and have yet to find use for one thing the Institute taught. In other words, it has no relation to engineering. Our basic work is to find out what the general public thinks about the telephone and the various companies in the system, rates, and so on. (No, I'm not the least bit interested in your service complaints, nor the time you think you were overcharged on a call to Simmons!) We do big stuff, something like Lew Simon's General Motors consumer research division or George Gallup's American Institute of Public Opinion. Our field is pretty broad and includes most of the methods used by other outfits, as well as a review of their more important studies. At present I'm personally tied up with a study of about 800 interviews with as many farmers in Ohio. There is a certain amount of supervision necessary in having the information coded and punched on Hollerith cards so that it can be mechanically summarized on International Business Machines. Then comes the analysis: how this factor affected the farmers' attitude on this particular point. Mind you, you cannot ask a direct question and get a significant answer in this game. It all has to be done indirectly. Another thing that clutters up my desk is a copy of every newspaper editorial, letter to the editor, and so on, that mentions the telephone. We get out a periodic summary that shows potential trouble spots, at least as reflected in the news of the country. Briefly stated, it's interesting work, although far from electrical engineering, and I think has a good future both as a profession and as a position in the Bell System. I have had two flying trips down to Miami to see the family. I'm all with Gary on the idea of traveling by plane. A few railroad executives could learn a lot about courtesy and passenger comfort. Hope none of you fellows is a railroad man. I guess my flight mileage would total about 5,000 miles. I've also enjoyed the best hotels in Richmond and Jacksonville at Eastern Air Line's expense. On

1935 Continued

two different trips we were forced down because of bad weather between Charleston and Richmond at night. Then there was the trip with Otto Zwanzig and Ed Helwith to Billy Parker's wedding a year ago, ten days after the hurricane. That section of the country was a mess when we passed through it. The wedding was a lot of fun, and both families did their utmost to put on a delightful week end. Unfortunately Bill lost his job just one week before, but it did not seem to affect anything. So much for the trips. Love life — none. Extra-curricular activities — various. Now specializing in boat racing; crew every Saturday and Sunday on the International sloop *Muskeget* owned by Harold White."

The last of this long list of letters is from Otto Zwanzig, who was at the meeting of the Classes of '34, '35, and '36 at the Technology Club in New York, but whom I could not get to spill as much dope as there is in his letter. Here it is: "As some of you know, I started working for Public Service Electric and Gas Company of New Jersey two days after finishing school in February, 1936, and I am still working (?) there. For about a year and a half I was subjected to, and introduced to, something called a cadet training course, after which I was transferred to our field office in Newark. Since last February I have been working out of Orange and Montclair offices (high-class neck of the woods, as you Jerseyites will know). My work is industrial power sales, which covers a lot of sins and virtues and occasionally means some interesting industrial engineering and competitive negotiations. The latter includes battling these dastardly so-and-so's who try (and I mean try) to sell these General Motors Diesel engines of which Lew Simon may have heard by now. Aside from this my time is devoted to contacting the industrial and larger commercial power accounts to see that they remain as contented and docile as possible, and to help them, if possible, with more economical utilization of their electric energy. My social and animal life has been quite seriously neglected. I do, however, belong to the Montclair Operetta Club (don't get scared, I don't sing) where I fool around with the stage lighting. This group puts on a fall and a spring show. The standard of the performances is almost up to Broadway shows (no kidding); it has to be with the price at \$2.00 a seat. This activity keeps me going about four weeks before each performance. In addition I have just started my third year of night classes at New York University. The two courses I am taking this year (economic theory and economic history of Europe) are veritable reading marathons. The result is that I find my evenings pretty adequately occupied and have little available time to chase the proverbial 'tale.'"

Now all we need are a few more of you self-starters to get these chain letters started à la Bud Pflanz style, and we will have to take over the entire Review to cover all the news. Incidentally, Bud wants to thank you birds who con-

tributed and to say that the letters are being published here in The Review in order that the rest of the gang may get in on the stories. Don't forget that we have a reunion coming up pronto, about which there will be more news in the next issues. — ROBERT J. GRANBERG, General Secretary, Care of W. C. Voss, 9 Old Town Road, Wellesley Farms, Mass. RICHARD LAWRENCE, Assistant Secretary, 111 Waban Hill Road North, Chesnut Hill, Mass.

## 1936

The only letter that we have from any of the Course correspondents comes from our chemical classmate, Bob Sherman. The letter was written in October but now finally finds its way into print. Bob writes: "As you no doubt may know, my father died last April, leaving me with an estate to settle. Hence, contrary to my original plans, I did not spend the summer in Boston, but right up in Fitchburg, where I remained throughout the vacation. My lawyer is one of my high-school mates and has a camp on a lake near town; so I did not have too bad a time of it. Now I am back at Exeter again, teaching chemistry and physics — same old routine. Hence I haven't seen many of the boys or had much time to write to them. From my invaluable assistant, Fred Carten, whom I saw at the convention of the American Chemical Society in Boston in September, I learned something about the boys. Joe Ackerman has received his Ph.D. in Chemistry and is now with the Kimberly-Clarke Corporation, interested in wood by-products. Joe had a pretty tough thesis on an asymmetric synthesis using circularly polarized light.

"Willie Anslow, who threatened to write two years ago, is still looking for his ink, apparently. At any rate rumor has it that he is now an assistant in charge of preparations at Cornell Medical School in New York. — Fred Carten received his Ph.D. this summer in Chemistry and has gone to work as a research chemist with Atlantic Research Associates in Newton, Mass. Fred has worked with them for the past two summers and has been interested in wool made from the casein of milk. — Harry Donaldson is now with the M. W. Kellogg Company in Jersey City, doing research and analytical chemistry. — Harry Herpers, after working in the Geology Department at Tech for two years, has now gone with the Field Museum, Chicago, as geochemist. When I last saw Harry, he felt that at long last he had discovered a job that was right down his alley. — Mrs. Alice Hunter Kimball has given up teaching. Alice was at the Chemical Society convention, but I got a chance to see her only at a distance. Bud Milone has also received his Ph.D. and is now a chemist with Goodyear in Akron. Charlie Saffer managed his Ph.D. this spring (after only two years, during which he was also teaching school in Peabody) and really deserves a lot of credit — some worker. In June, I received a card from him from Oxford, England, which says: 'I may join this college next term. At present I'm living in digs and

doing research with Sir Robert Robinson in the Dyson Perrins on oestrogenically active stilbene derivatives. My address is 24 Linton Road, Oxford, England.' At last word, Charlie was uncertain about staying or returning, as a result of the war.

"Mike Sieminski, who has been a research assistant in the Textile Course at Tech for the last three years, has just changed his job to one which sounded both novel and good when I first heard of it: store chemist with Filene's in Boston. — Barney Vonnegut has received his Ph.D. in physical chemistry. He worked with Professor Scatchard. Now Barney is with the Hartford Empire Company in Butler, Pa. — Brent Lowe, who is now in Auburn, N.Y., with the Auburn Button Works, was around twice this summer in one of the most rattletrap cars I've seen in a long time. The key did not work the ignition; so he had an electric-light switch — chain pull — in place of it. He claimed his horn was too loud for town driving; so he had a bell for that purpose. All kidding aside, though, I think he is having a grand time with the car, even though it breaks down every now and then and burns plenty of oil and gas. It seems he bought it in Boston in order to drive out to Auburn. . . ."

Another letter in my slim mailbag came from Billie Benson, XVI, who is in Santa Monica, Calif., working for Douglas Aircraft: "For the past year I have been located at the El Segundo division of the Douglas Aircraft Company, working in the aerodynamics department. At present most of my time is spent in flight research and flight demonstration tests of our planes, including our DC-5, the dive bomber for the Navy, the attack bomber for the Netherlands, and, more recently, the attack bomber for France. Very interesting work, too. Have seen George Ray, Dick Murrow (both at Douglas), and Jim Kendrick recently, but I have no definite information about them. The main purpose of this letter is to enclose the attached newspaper clipping and thereby explain the changed address you will note at the head of this sheet." The newspaper clipping tells of Benson's wedding to Miss Virginia Brooks before 250 invited guests on Saturday afternoon, September 16. After several weeks spent in the Pacific Northwest, the newlyweds returned to Santa Monica where they have established residence at 1134 Chelsea Street.

We have received an announcement of the wedding of Bob Gillette and Miss Janet French in Springfield, Vt., on October 19. They enjoyed a wedding trip to the Carolinas. Bob is employed as design engineer by Jones and Lamson. Another recent wedding was that of Bill Garth, who was married on September 30 to the former Miss Sarah Curtis. After a motor trip the couple returned to Charlotte, N.C., where Bill works for the Firemen's Mutual Insurance Company. Frank Gregory is engaged to Miss Margaret Fogler, sister of Ben Fogler. Charlie Brown, who went to Annapolis after leaving the Institute, will marry Miss Rosalie Ely of Rutherford, N.J.



1936 Continued

A letter from Elliott Robinson, I, tells that Charlie Rife, VI-A, is studying at Harvard Medical School, working toward his M.D. He is staying at Vanderbilt Hall on Longwood Avenue, Boston. Elliott is again assisting in testing materials at Harvard and having a lot of fun studying testing materials. — Al Horton, XV, having completed his term as assistant to President Compton, is now employed by the general engineering department of the Standard Oil Company of California in San Francisco. George Donnelly, XV, is working for the News Syndicate Company of New York City. George Robinson, X, is with Hart Products Corporation, in New York City. Lester Raymond, XVI, is now working for the United Air Lines in Salt Lake City, Utah. Tom Nelligan, IX, is employed by the Columbia Engineering Corporation in New York City. General Electric has claimed another of our Class, Max Saslaw, who is at the Pittsfield works. Basil Martin, II, is in Burbank, Calif., working for the Vega Airplane Company. We hear that Tom Terry, X, has gone to South America, where he is working for a copper company in Oroyo, Peru. That's a long way!

Since Al Horton has left the Boston district, his position as assistant secretary will be filled by Bob Sawyer, XVII, who is the class representative on the Alumni Council. Bob will be glad to hear from any members of the Class and will handle class affairs in the Boston district. — ANTON E. HITTL, *General Secretary*, 109 Shepard Avenue, Kenmore, N.Y. ROBERT E. SAWYER, *Assistant Secretary*, 55 Robinwood Avenue, Jamaica Plain, Mass.

## 1937

Thursday, November 16, the M.I.T. Club of Northern New Jersey held the first of its series of meetings at which we had dinner, saw some very interesting sports pictures, and quaffed beer as we talked over old times with the others. Leo Avondoglio and Dave Richardson, who had been with Curtiss-Wright in Buffalo, are now at the Clifton, N.J., plant. Leo is living at 285 Lake View Avenue and Dave is at 275 Doremus Avenue, but in Glen Rock, N.J. Rupert Lewis was there from Plainfield and seemed rather put out that I had published all of his letter, but it was so newsy! Also there were Roy Smith, who is living at 12 Clairidge Court, Montclair; Max Gerson, with Worthington Pump, Harrison; Dick Gidley, Bethlehem Steel, shipbuilding division, Hoboken; George Ewald, 345 Wyoming Avenue, South Orange; Jack Booton, 105 Hudson Street, Jersey City; and Bill Titherington, who is now attending Stevens. Much beer was consumed and many reminiscences swapped. It was a good party, but we missed the large number of '37 fellows who live near by but who just couldn't make it. Incidentally, I won nine dollars on a sweepstakes on the number to be present at the meeting!

Mrs. Al Schroeder writes that a seven and thirteen thirty-seconds pound baby girl was born to her and Al on April 13.

It's those extra thirteen thirty-seconds that count. The new daughter's name is Carol Ann, and in spite of being born on the thirteenth, she's doing nicely. Alfred is at present working on television research in the advanced research department of the Radio Corporation of America.

Among the missing of the Class are: Stanhope B. Ficke, his last address being San Carlos, 150 East 50th Street, New York City, and home address Davenport, Iowa; Ching S. Chow, whose last address was 149 Austin Street, Cambridge. If anyone has any information concerning these two, please pass it on and lift the veil of darkness. — Bob Fischel has transferred from Lockheed in Burbank, Calif., to Martin in Baltimore. Norm Robbins, on his first vacation in two years, stayed here with me in November on his way home to Massachusetts.

Engagements noted are Miss Jacqueline Speyer of Brookline to Andre Laus; Miss Ruth Miles of Washington, D.C., to James Henderson; Miss Margery Harris of Waterbury, Conn., to James McLean; Miss Dorothy Berry of Larchmont, N.Y., to John Robert Ferguson, Jr.; and Miss Janet Benson of Arlington, Mass., to Melvin Prohl.

Cliff Lytle, Gil Mott says, married Betty Hutchinson (sister of Dick Hutchinson) on September 9 at Franklin, Mass. Gil was best man. They are living in Waterbury at 69 Lexington Avenue. Cliff works at the Scovill Manufacturing. — Pete Reitz is an instructor in the Electrical Engineering Department back at school. He says he's still single! — Dick Westfall is shift supervisor in the safety glass production department of the du Pont Company at Arlington, N.J. You will remember that Dick married Jeannette Wallace, Wellesley '38, and they are now living at 13 Ridge Road, Lyndhurst, N.J. — Bob Childs is working at Medical Center in New York and lives at 711 171st Street.

Sidney Mank is an engineer for the Aetna Fireproofing Company of New York. He is specializing in all forms of concrete and cement work. He's not married yet and has no prospects, or so he says. Is there anything we can do about it?

Edward M. Brooks has the following to say for himself: With Pan American Airways in San Francisco as a meteorologist and then transferred to Pearl City, Island of Oahu, which will be forecasting center for clippers flying between Hawaiian Islands and Guam to the west and Canton Island to the south. He also says that Oscar Puls married Herta Erdhütter in England on August 19. — Russell Coile of Honolulu is probably working in Washington, D.C., on a government job. — Howard McMurry, who has been prospecting for Shell Oil in Texas came north to Old Tappan, N.J., to marry Margaret Gifford on September 16. New address is Lake Charles, La. — Pun Kien Koh, since spring, has been working in steel mills in England, first in Birmingham and now in Wednesbury, Staffordshire. — Raymond Wexler joined Northwest Airlines during the summer to fore-

cast weather. He is stationed at Spokane. — Les Welch just passed through Honolulu last week on his way back to the Manila Observatory where he will be working.

Howard Lind, who is a bacteriologist and director of laboratories at the St. Louis County Health Department Hospital at Clayton, Mo., complains that there are very few M.I.T. Alumni in his area — "either that or I don't know of any." How about it? Are there any of you out there? — Kaen Noonan is dental surgeon at the Boston State Hospital. — Oscar Muckenhirn was married to Miss Ruth McKeage on June 29 in Calgary, Alberta, Canada. — Walter Sherry (Walt to you), is a plant engineer for the J. H. Williams Company of Buffalo. His address is 303 Starin Avenue. — Bill Arnold is teaching at Cooper Union in New York City. — C. Ronald Smith tells us he was married to Miss Christine B. Riedrich of Scotia, N.Y., on February 11. He is with the vacuum-tube engineering department of General Electric.

Teh-Ching Li is with Ebasco Service, Inc., at 2 Rector Street, New York City. — Virgy Vaughan married Miss Sarah Craig on June 2 in Franklin, Tenn. Virgy (short for Virginus) now goes by the name of V. Nelson Vaughan. — Ed Fischer, in a recent letter, made the brief statement that he was married on June 29 to a local high-school teacher of Denver. How about elaborating on that, Ed? Ed has recently been elected secretary-treasurer of the Rocky Mountain Technology Club.

Marriages noted: Miss Ruth Ulmer of Newton Center, Mass., to Jim Loder; Miss Jane Bliss of Pittsfield, Mass., to Frederick Merrill; Miss Lois Gulesian of Milton, Mass., to Arthur Ford; Miss Ruth Bell of Wellesley Farms, Mass., to Phil Peters; Miss Rita Carr of West Roxbury, Mass., to Bob Brauer; Miss Ann Rosenberg of Brooklyn to Sidney Sussman; Miss Doris Abrash of Paterson, N.J., to Henry Stampleman; Miss Lois McCarthy of Somerville, Mass., to Henry Guerke; Miss June Wheelwright of Cohasset, Mass., to Dave Fulton. Congratulations, folks; see you next issue! — WINTHROP A. JOHNS, *Secretary*, 245 Hale Street, New Brunswick, N.J.

## 1938

We are happy to begin this month's notes with news of our President, Jack Wallace, who was in Boston for a few brief hours in the course of his "relocation" — the relocation being necessitated by the fact that Budd has decided to give up the manufacture of airplanes. While we were enjoying a reunion with Jack we managed to squeeze from him the fact that Barney Mehren is now on the West Coast marketing a new drink called, of all things, "Squirt!" Bob Robbins and Johnny Ford are both assistant flight engineers for Pan American, and Lou Allen, who by the way is reported by Jack to be just returning to his usual state of perfect health after a siege of pneumonia, is in the office of the same company.

1938 Continued

Also in Boston recently was Bill Bender, who, with Chauncey Bell, Jr., and Hans Bebie, is living in a pleasant apartment in Baltimore. They're all working at Glenn L. Martin, which company also enjoys the distinction of employing Jim Thomson, Eric Mietch, Dick Mueller, and Dave Hunter.

Dick Bartels was also recently in Boston and reported that he was doing development work with the National Oil Products Corporation, in Harrison, N.J. In the same district are Gil Griffin, who is a cadet engineer with Public Service in South Orange, and Fred Strassner, who is in charge of the electric contact department of an electrical company in Maplewood. Howie Banzett is living at home in Bergenfield, N.J., and working for the Aluminum Company of America, and Ollie Kangas is with Esso and living in in Roselle with Steve Perry '35 and Al Swift '37.

Horace Homer is seen quite frequently around the Institute where he is supplying Nick Carter with fluorescent lamps. Horace is working in Lynn for a General Electric subsidiary and doing development work on said lamps. He has reported the marriage of Charlie King to Miss Lois Seip, who are now making their home in Roselle, N.J. — Al Wilson, who evidently didn't get enough of the Institute in the daytime, is taking an evening course in cost estimating, as is Tommy Oakes. Al is a design engineer for his father's firm, the A. O. Wilson Structural Company; Tommy is with the E. B. Badger and Sons.

From his lair in Philadelphia, Haskell Gordon has written an interesting letter concerning the movements of more of the Course XVI graduates. He, Joe Pasternack, and Hy Katz are living together, and all three are working at the Naval Aircraft factory. Haskell gives the following account of his activities: "I've been doing some teaching, in addition (evidently to work! — *Secretary*), at the Penn State College Extension School which runs a three-year course in aero engineering here in Philadelphia. It's more fun than work. Of course the remuneration is quite handy, since my engagement to Miss Ina E. Rose of Worcester, Mass., was announced in that city on November 4. Probably will be married to Ina in April. Hy and Joe are taking courses evenings at the University of Pennsylvania, seeking to secure Ph.D.'s in physics." Haskell ran into John Aldridge on the New York train one day and learned that John was working in the experimental department of United Aircraft and that Luther Kites was also in Hartford with the Hamilton Standard Propeller Company.

Charlie Locke '96 recently received a letter from Louis Gerson stating that he has been in Ruth, Nev., since July, working for the Nevada Consolidated Copper Company. He began with the bull gang, and for two months labored under a blistering Nevada sun digging ditches, carrying lumber, mixing concrete, and developing his muscles in various ways. In September, Louis was installed as

laboratory helper in the assay laboratory, doing the heavy job of putting assays in the furnace. This meant an increase in pay and more opportunity to learn. Other Tech men with the company are Frank Leonard, Charles Maak, and Henry T. Mudd. Charlie Maak is on the job as a smelter. — DALE F. MORGAN, *General Secretary*, 6 Avon Road, New Rochelle, N.Y. LLOYD BERGESON, *Assistant Secretary*, 885 Beacon Street, Newton Centre, Mass.

## 1939

By way of the Communications Option of Course VI, we have the following word from Walt Halstead, who is in the electrical engineering department at Ohio State University: "I am an assistant in the communications laboratory and at the same time am doing graduate work toward the master's degree in electrical engineering. The work is very enjoyable, the facilities for study are fully satisfactory, and I am pursuing some of my pet problems in research about which I shall write more when (and if) I arrive at some concrete results." Among several letters enclosed with Walt's was one from Burky Kleinhof: "For the present I am with Electric Service Supplies Company in Philadelphia, going through a training course which is to lead to sales engineering. I'll grant that it is not communications, but it is one in which my electrical engineering education will be of advantage. I should say that approximately 45 per cent of our sales are in lightning arresters. As far as I can see, I am the only M.I.T. man there. However, the place is overrun and infested with Drexel Institute men in the labs and sales staff. They've started me in the office with my own desk, and things are going along very, very nicely. I've never had any office experience, so that I am starting from scratch, and they are patient enough to contend with it all."

Bert Pacini, we hear, is planning to continue his education at Yale. The engagement of Dick Myers to Miss Betty Burgett of Galesburg, Ill., was announced shortly after graduation. Dick is working for the Federal Telegraph Company in Newark, N.J., being officially designated as a junior engineer. He has been working especially on transmitter design. Joe Hulst has obtained a job, very much in line with his technical education, with the Tung-Sol Company, manufacturers of vacuum tubes. Joe is in the laboratory of the applications department and enjoying the job thoroughly.

Likewise through our Ohio State correspondent, Millard Brenner writes: "At present I am employed by the Jefferson-Travis Radio Manufacturing Company in Baldwin, Long Island. We manufacture receivers and transmitters for small boats up to 100 watts (the transmitters not the boats)." Ed Yetter says: "I am at Raytheon working on the development of tubes and circuits for spot welding. Have you heard that I'm married? The lucky (?) girl is Miss Betty Wing of Scranton. Al White is also at Raytheon — working in production." Finally, from Monty

Schultz: "I'm with the radio division in Baltimore (Westinghouse) and am working in the lab on a one-kilowatt frequency-modulated transmitter. It's a sweet job and working in the lab is a real pleasure."

Johnny Alexander, XVI, our galloping lacrosse captain, has forsaken sunny Long Island for a job at the Wright Field in Dayton, Ohio. Alex was able to pay a return trip to Boston for a few days before departing, and we understand that quite an occasion was enjoyed by all. — From Bill Babcock we hear much news of Course I, brightest of which news is that all, or all but one, of the men are placed or back in school. Bill is taking some graduate work at the Institute and at times sneaking up the river for a few of the tougher Harvard Business School ordeals. Bill Christensen has branched out to the New York home office of the Turner Construction Company, while Roswell Finlay is an assistant field engineer with the Candeboro Construction Corporation. With the Metropolitan District Commission Water Supply are Norm MacDonald, sporting a new car, and Al Rugo, called to work as he was on his way to California — purely pleasure. Alex Laker is with the Hartford Water Bureau, and Hugh Kennison is with the Lock Joint Pipe Company in Grand Rapids, Mich.

Bob Plunkett, as you may have guessed, is involved with simultaneous calculators and is an assistant in the Electrical Engineering Department at M.I.T. Also back at school, doing graduate work, is Joe Zeitlen, still happily married. Chuck Ryder is studying strenuously to become a surgeon, and Bud Morrison is out on a housing project with the Turner Construction Company.

Another quick flash from VI-C shows Al White qualifying as a "milliwatter," in the truest sense of the word, with the Raytheon Production Corporation. From Sam Semsiper: "I left for California in the middle of September. Besides taking a few courses [at Stanford], I am supposed to be doing some research work on antennas, which research I haven't exactly started as yet. I've seen a few football games — yessir, just like collitch."

Bill Beer, XII, reports that he's working for the Seismograph Service Corporation: "As for me, the geophysical game has been keeping me busy. I am a trainee with the outfit whose stationery I had to borrow in order that The Review should not appear with absolutely no news from the geologists. So far I have covered a good bit of the country as the crews move about once a month and the trainees do the same, some moving on their own from crew to crew. We have crews in Argentina, Venezuela, Trinidad, and Java, so I may see a good bit more territory if I choose to stay in the racket."

A letter from Howie Marshall reports on the activities of Course XIII, which appear mutually satisfactory to all concerned: "Smitty Curtis finished this summer and is with the New York Shipbuilding Corporation in Camden, N.J. — at last report taking a training course to



1939 Continued

fit him for the work in which he will eventually wind up. Al Gabriel is at work on the turbine test floor of Westinghouse in Pennsylvania, while Bob Tapscott has been working in the engineering technical department at Newport News. On November first, Bob was scheduled to start in in New York with George Sharp. Dave Hammell and Steve Sullivan, upon completion of the Bethlehem loop course, have been sent to the Sparrows Point, Md., yard of the corporation, where they are getting a taste of the whole plant and doing a lot of griping about the number of required reports, and so on." Howie is in the cost-engineering department at Newport News and "very happy about the whole thing. . . . No deaths, marriages, births, engagements, Pulitzers, or captains of industry reported, but Gabriel has a gleam in his eye and Curtis (P.W.) . . . the same. . . ."

Aaron White, XIX, is enjoying his part-time research assistantship at the Institute, which he is combining for study for his doctorate. — Nickie Carr has obliged with a paper headed *Libel and Slander*, discreet parts of which follow: "Will Keene does not appear to be much changed by Graduate School. Talking just as much as of yore. L. Burns, better known as Colonel Gub-Gub Magruder, has embarked on a course of action which bids fair to make him the social lion of Buffalo, if continued for long. Perhaps the consumption of prodigious quantities of orange juice from his beautiful new orange wringer gives him the necessary vitality. Brownie Parker finds little time for work, as he spends all his time wrestling with Jack Chapin. (P.s. Jack invariably wins.) Brownie has developed into quite a glass blower — wherefrom cometh? Bob Sackheim, our beloved jazzmaniac, is still driving his prewar Dodge — that other war — which always gets him there, in the end. Paul Schneider is little changed but still misses his basketball. Paul's handwriting has developed a distinct southern accent — could it be that Martha Washington College influence? Gus Griffin has taken over Socony-Vacuum and has holed up for the winter in the Buffalo University Club. Spends all his time learning a new cracking process. Shift work not conducive to a few brews with the lads — same old Gas — pardon — Gus. Woostie dropped in the other afternoon with lurid tales of high-temperature work and pumping molten sodium cyanide in pipes red hot. His den for the winter is Niagara Y; says the town is a . . . hole. Could it be that night life is lacking in the provinces? Walter's oughta open up a branch.

"Bob Atwater is out hunting most of the time. There is open season all year round on debts (sub or otherwise) and, I suppose, no bag limit. Leo Kiley — same grin — spends his evenings, at times, in

the Frink House in Buffalo; National Aniline — never a dull moment. Quite a hand at poker — we have to let him play 'cause he owns the chips. Nicholas Elkin-ton Carr, commonly known as the widget, has of late reversed night and day and seems to be doing slightly more clearheaded work at night — in truth, nothing new."

Win Reed, X, is happily single and working for Socony-Vacuum, still in development. He lives in an apartment with two Yalies and a Penn Stater — just enough for bridge and a few quickies before retiring, managing to keep Win out of the "all work and no play" slump. Al Schneider from South America, so we gather, writes: "The weather is not bad at all; the rainy season lasts from June to December but we get very little rain except from September until the middle of December. . . ."

Speaking for X, Win says: "Course X is either terribly busy or terrifically shy. No reports of matrimony, completed or intended; however, Bill Mohlman tells how the practice boys get around at the stations — socially, ya know. Unluckily he can't follow, what with a corner on his heart belonging to New York or thereabouts. Al Schreiber has written about the comely lassies in Panama, but his story is likewise ruined by fidelity to the o and o in California."

Bill Willard has obliged with several bits of news concerning the XVII group: Tomas de los Reyes, we understand, had quite a time reaching the Philippines after school. He was on an Italian boat going through the Indian Ocean. The boat couldn't land and the course was zigzagging for protection purposes. Also the water ran out, and the entire group of people had to live on spaghetti for two weeks. Andy Rebori is reported back in Chicago; Bill Chance, in the purchasing department of the Austin Company in New York; and Carl Swanson, with C. W. Whittier and Bro. in Boston. Swany was married this summer, although we haven't as yet discovered to whom, and is commuting from Marblehead. Bill Willard says: "I received an offer from the Austin Company and have been sent to Vermont as an engineer and clerk on a mill-construction job. It's an awfully large bite for me, I suppose, but wonderful experience. From the feeling of the weather here, I'm going to be needing my heavy underwear — three feet of snow already."

In the following paragraphs "I" refers to your Assistant Secretary. — After two months of roaming around the country through the medium of the class notes, Stuie Paige, our honorable Secretary, thought that perhaps many of you would like to return to the scene of the crime and hear of the goings on around the Institute. If you should come back some weekday and wander near the differ-

ential analyzer, you would probably see a red mustache threading its way through a mess of wires. Behind it would be none other than Perry Crawford, XV. Not far away will be Bob Plunkett who seems to have forsaken Course I for the moment.

The other night at Jake's I happened to run into several of the boys, who had met to discuss and reminisce about the Thorne-Loomis trip. Thirty-nine was represented by Jim Laubach, XV, and Bill Brewster, II, from the seven or eight who were present. Bill and Jim are living together in an apartment on Beacon Hill, 66 West Cedar Street. They are both taking life very easy as they are being "led through" a training course at United Shoe Machinery Corporation.

Over Course XVI way you will find Bob Withington working on the Wright Brothers Wind Tunnel and not far away will be Johnny Diver. In addition to assisting in the Department they are also pursuing their studies. Several others who are assisting are Aaron White, XIX Course Secretary, Bill Pulver, XV, and Joe Weeks, X. Aaron is working with Professor Bitter on magnetic research and Bill is taking Frank Atwater's place as assistant to Professor Fernstrom '10. Bill has been giving widely varying sets of grades. Apparently he has not become adapted to the six flights of stairs in the Graduate House. At the present time Joe is at Practice School and will return to the Institute in February. Several months ago, Joe returned to school to transact some sort of business on a Friday. He arrived in the afternoon and found that the Institute was closed; he had forgotten completely that it was Field Day.

Doc Wingard, IX-B, is continuing his work in geology. Except for one or two visits to Walter's, he has forsaken Pi Beta Tau for Tau Beta Pi. Although not at the Institute, Bob Casselman, XV, is living in Cambridge with three other Tech men and is working for Lever Brothers. Freddie Grant, XV, and his attractive wife have taken up residence in Cambridge. In his spare time, he is working for Dewey and Almy. Incidentally, Freddie has gained fifteen pounds since graduation! Leigh Hall, Jr., and Durb Woolford, both late of Course XV, are frequently numbered among the transients who spend their odd moments in Boston. Incidentally, they are living together in Tudor City with Jay AuWerter and Doug Esperson of the Class of '38. It is rumored that they work. This rumor is unconfirmed as we go to press!

By way of carrier pigeon: The metallurgists at Bethlehem, Herasimchuk and Hilliker, have had their training course cut short and they are now working in permanent positions. — STUART PAIGE, General Secretary, Box 207, Greenwich, Conn. MORRIS E. NICHOLSON, Assistant Secretary, M.I.T. Graduate House, Cambridge, Mass.



## "Silk Stockings in the Morning? Imagine!"

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